January, 1954

Telephone Engineer and Management

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THE NATIONAL TELEPHONE MAGAZINE

Featuring In This Issue—

★ PROVIDING EMPLOYEES WITH INFORMATION, by John W. Cogswell
★ LINE REQUIREMENTS FOR CARRIER, by R. E. Graham
★ CABLE PLOWING CONSTRUCTION, by John S. Reed
★ TRAFFIC RATES/INVENTORY, by Ruth E. Richards

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TELEPHONE ENGINEER & MANAGEMENT

The National Telephone Magazine • Vol. 58, No. 1, January, 1954

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1052 W. 6th St., Los Angeles, Calif.

Feature Articles

★ Editorial — "Acres of Diamonds" 39
There may be something of value right in your own back yard.

★ Washington Bureau Reports ..... Roland Davies, Fred Henck 43

★ Providing Employes With Information They Want ..... John W. Cogswell 45
No single project can adequately do the employe information job — a complete program is outlined here.

★ Line Requirements For Carrier ..... R. E. Graham 49
A discussion of attenuation, impedance irregularities, noise and crosstalk, and carrier transposing of circuits.

★ Cable Plant Construction (Part II-B) ..... John S. Reed 53
Continues discussion of cable record books, terminal feed records and terminal exposure section of the cable record.

★ Traffic Takes Inventory ..... Ruth E. Richards 62
How to take accurate peg counts.

★ Telephone Review ..... S. B. Green 65
A veteran telephone man reviews the industry from the early days to the present.

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FRONT COVER: Our front cover shows members of Central District Group of Community Telephone Co. of Wisconsin, Black River Falls, who received service awards on November 13, 1953. Front row (l. to r.): B. H. Piepmeier, Jessie Barney, Fairchild; Mattie Button, Melrose; Agnes Button, Pearl Hayes, Minnie Blencoe, Taylor. Second Row (l. to r.): Adeline Strozewski, Bernice Lane, Osseo; Lorraine Allen, Thelma Peterson, Norma Moe, Janice Dufeck, Mary Jocobson, Florence Bock. Third Row (l. to r.): B. F. Stalter, Marjorie Hagen, Margaret Hunter, Frances Stoker, Margaret Meinholdt, Sadie Jennings, Hixton; Elizabeth Staff, Grace Phillips, Sally Haugen and John Samdahl. Fourth Row (l. to r.): Charles Scherer, Robert Teeples, Carl Cadby, George Davis, A. W. Powell, Herbert Sukopp, Lillian Sanrope, Osseo. Last Row (l. to r.): Maurice Turner, Neal Duxbury, Harold Hanson, James Johnson, Frederick Schultz, Sherman Holmes, Albert Stenulson.

INDEPENDENT TELEPHONES SERVE 2/3 USArea

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"PROVING-IN"
under 5 miles
with type 'S'
FM Carrier
Subscriber and Trunk

WHAT DOES IT MEAN?

It means that the cost of one complete (installed) channel of McElroy Type 'S' Carrier is less than the true cost of five additional wire miles, based on national averages!

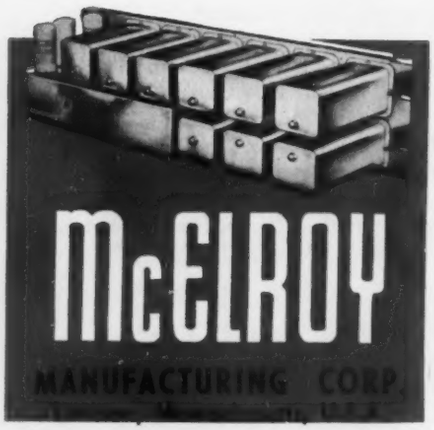
IT MEANS THIS TO YOU!

If the construction costs of providing an additional wire circuit (subscriber or trunk) on your system exceed $790.00, you can "prove-in" with Type 'S' carrier.

AND THAT'S NOT ALL...

Carrier circuits have a very definite maintenance advantage over the years vs. wire circuits.

We urge you to review your expansion requirements and invite your "prove-in" calculations and inquiries.



McELROY
MANUFACTURING CORP.

Mostly About People—

Across The Editor's Desk

Traveling Days Coming

THE NEW CONGRESS plus activities of the Small Companies Committees of USITA will see many telephone folks doing more traveling during 1954 than is customary. It is good to see the work being accomplished by these Committees of our national telephone association on behalf of the thousands of smaller companies that are part of the Independently owned segment of the telephone industry. During December several Committees of USITA were in session and during this month others of the Committees recently appointed by President Warren Clay will hold meetings. The hearings on new tax laws, wage-hour amendments and many other activities will take many Independents to Washington in the coming months.

Minnesota Meeting

THE MINNESOTA Telephone Association will be holding their annual conclave in Minneapolis in a couple of weeks. This meeting has for the past few years been convened at St. Paul but for 1954 the Hotel Radisson at Minneapolis will be headquarters. Secretary *Keith Vogt* has programmed an excellent fare for his members as we expect they will exceed their past attendance records barring unusual weather or storms. This lead-off convention of state telephone associations has long been a barometer for attendance indications for the following meetings. We are carrying the current telephone convention schedule in this issue.

World's Fastest Railroad

THE FOLKS AT *Cook Electric Company*, Chicago, are entitled to do a little chest thumping these days. The December 15 issue of the *Chicago Daily News* devoted most of their picture page of that issue illustrating the world's fastest railroad. Cook, through its Laboratories Division, maintains a track and sled at the Air Force Flight Test Center on the Mojave desert to test parachutes at or near sonic speeds. A gigantic white missile that looks like an oversized bomb provides the power and is designed for speeds up to 1,500 miles per hour. Cook also handles other testing apparatus to test dropping parachutes with the missile being equipped with cameras and tape recorders.

"Traffic Takes Inventory"

ON PAGE 59 OF this issue we present another article by *Ruth E. Richards*, Methods Supervisor of the General Telephone Co. of Illinois. "Traffic Takes Inventory" is a title that takes quite a bit of good informative writing to cover. We predict that the gals in many of the offices where this issue is available will grab your copy if you are not careful.

If you would like for us to send copies of Miss Richards' article to members of your Traffic Department let us know. We'll be glad to send the copies.

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For immediate shipment
11 pair 22 gauge
16 pair 22 gauge
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500 to 900 ft. Coils
#18 PARALLEL Neoprene Jacketed 2-conductor Copperweld ..... Per Mft. $15.56
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NEW DROP WIRE
1000 to 1500 ft. Coils
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Service records prove the *extra* long life, *extra* low maintenance costs, *extra* power of Exide-Manchex batteries. There's a size and type for every application in telephone operation . . . for central office and private branch exchange equipment . . . for other applications requiring a reliable source of power.

Exide-Manchex batteries offer better service . . . longer life, for these reasons:

POSITIVE OPERATION: Dependable performance for all telephone exchange requirements.

ADEQUATE RESERVE POWER for emergencies beyond normal needs.

LOW OPERATING COST: Extremely low internal resistance.

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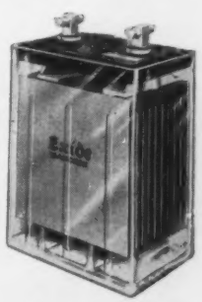
LOW DEPRECIATION: Sturdy, long-life construction, which includes the exclusive manchester positive plate.

GREATER CAPACITY in a given amount of space avoids overcrowding of equipment.

★ ★ ★

Various sizes and types of Exide Batteries are available in plastic containers.



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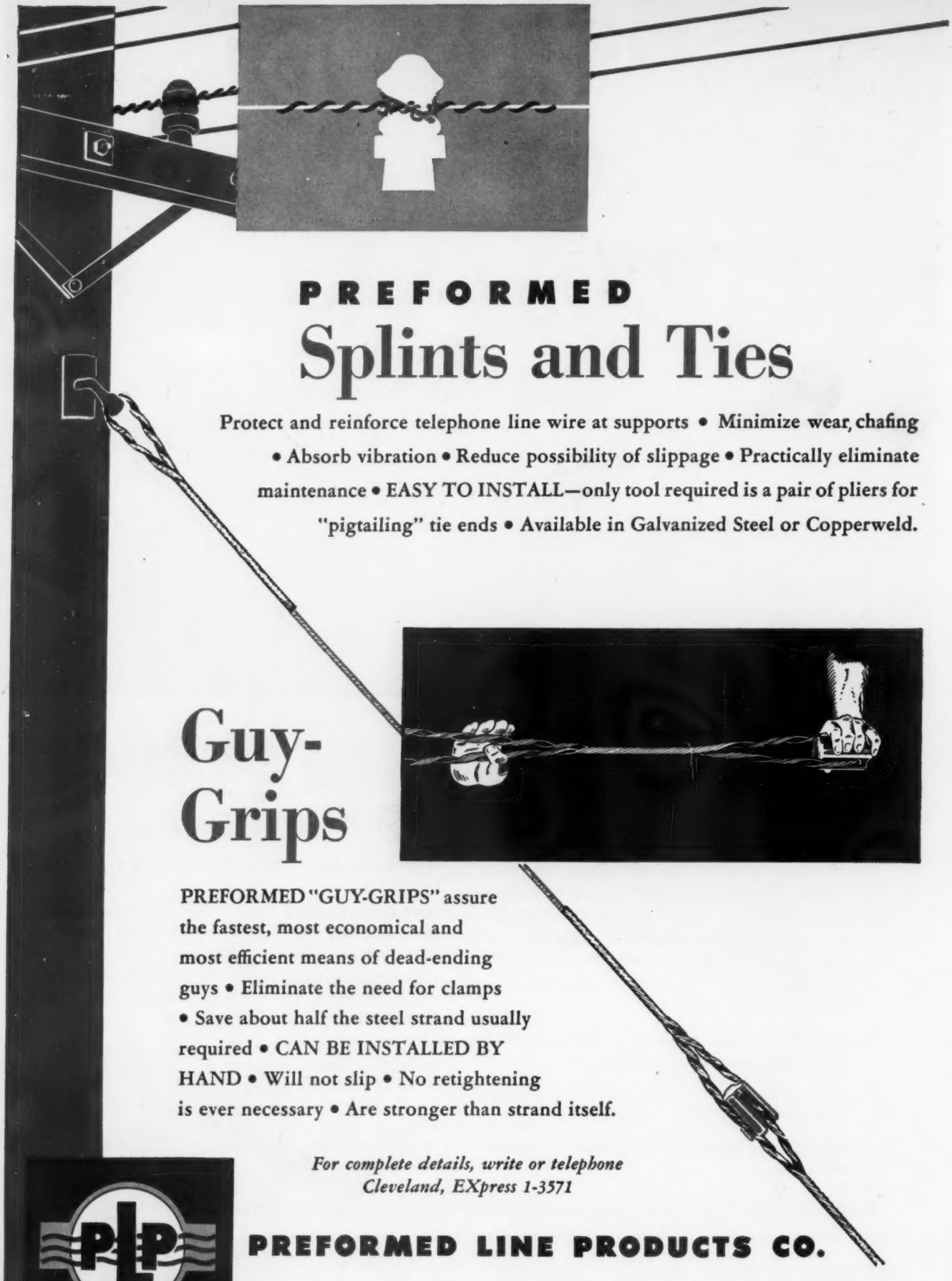

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Splints and Ties

Protect and reinforce telephone line wire at supports • Minimize wear, chafing • Absorb vibration • Reduce possibility of slippage • Practically eliminate maintenance • EASY TO INSTALL—only tool required is a pair of pliers for "pigtailing" tie ends • Available in Galvanized Steel or Copperweld.

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PREFORMED "GUY-GRIPS" assure the fastest, most economical and most efficient means of dead-ending guys • Eliminate the need for clamps • Save about half the steel strand usually required • CAN BE INSTALLED BY HAND • Will not slip • No retightening is ever necessary • Are stronger than strand itself.

For complete details, write or telephone Cleveland, EXpress 1-3571

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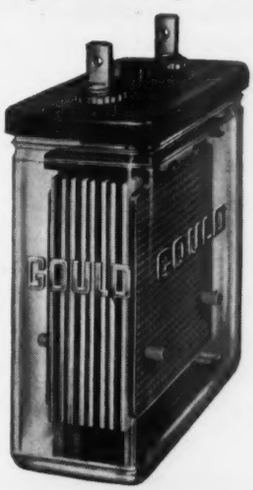
THANKS TO BATTERY POWER!

Emergencies never become crises when you've got Gould Plantés in your battery room. These Aristocrats of Stationary Batteries have PURE LEAD positive plates that constantly renew the active material throughout their life. *These batteries last practically forever!* The high-level performance and extra years you get with Gould Plantés make them the lowest cost stand-by batteries you can buy! *Standardize* on *Gould Planté!*



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Always Use Gould-National Automobile and Truck Batteries

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New Plug-In "45A"

Cuts Carrier Cost Lower than ever before possible!

TECHNICAL INFORMATION on Type 45A

CO-ORDINATES — Can be used above **any** 35 kc carrier; will co-ordinate with other systems in 40-150 kc range.

SAVES SPACE—Two complete 12-channel terminals including line filters, power supply, and other auxiliary equipment mount on single 11'6" rack.

SERVES DEPENDABLY—Circuit levels controlled within one db — **even under ice conditions.**

INSURES STABILITY — Frequency range is 40-150 kc; drift is **less than one cycle.**

SAVES MONEY — With simple changes, channel units ("plug-in" packages 10½" x 3¼" x 6⅜") can be used for **any** channel — fewer replacement units need be stocked.

Lenkurt Type 45A Wire Line Carrier Telephone System costs less to buy — less to maintain. Components are miniaturized, standardized, "plug-in" units; complete channel assembly plugs into small space as shown above. You can order equipment to fit your needs *exactly* and add channels one at a time, as your needs increase. Maintenance is simple — takes little time, costs little because any of the "plug-in" components can be quickly and easily replaced. And Type 45A saves more than 80% on floor space; two 12-channel terminals with common equipment can be mounted on one standard rack!

Lenkurt's new Type 45A Carrier will "prove in" where carrier could not be used economically before. Even if you have never used carrier, it will pay you to get the facts on Type 45A. Write us today!

Manufactured for

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Originators and Developers of the Strowger Step-by-Step "Director" for Register-Sender-Translator Operation . . . Machine Switching Automatic Dial Systems

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NEWSLETTER
TELEPHONE ENGINEER

Fortnightly TELEPHONE ENGINEER ★ TELEPHONE ENGINEER AND *Management*
ON THE 1st OF EACH MONTH ON THE 15th OF EACH MONTH

January 15, 1954

Dear Sir:-

USITA REPORTS ON GROWTH OF INDEPENDENT TELEPHONE INDUSTRY. Growth of Independent branch of U. S. telephone industry is depicted graphically in annual statistical volume of U. S. Independent Telephone Association (USITA), recently distributed. Comparing 1953 volume with that of 1943, USITA pointed out that 4731 exchanges of companies supplying information operated 5,431,000 telephones at close of 1952, against 2,637,000 in 4000 exchanges 10 years ago. Companies reporting in 1952 served about 62% of 8,798,000 Independent telephones in operation. Investment of reporting companies in telephone plant amounted to $1,154,000,000 at end of 1952, increase of $722,-000,000 in 10 years. Per-station investment, on average, has gone up about 32%, to $216 from $164. Local operating revenues per telephone averaged $43 in '52 against $29 in 1942, while respective toll revenues per station were $21 & $14. Operating expenses & taxes more than kept pace, going up 54%.

FINANCIAL BRIEFS: Georgia Public Service Commission authorized Southeastern Tel. Co. to issue and sell 35,000 shares of $10 par value common stock and $500,000 principal amount of 1st mortgage sinking fund bonds . . . Home Tel. Co., Monks Corner, S. C., authorized to negotiate $95,000 loan to finance dial conversion project . . . Stockholders of Granville (Ill.) Tel. Co. voted to install dial equipment. Pres. Joel W. Hopkins said conversion is scheduled for 1955.

CALIF. SCHEDULES MANAGEMENT CONFERENCE. Calif. Independent Tel. Assoc. will hold its annual Spring Management Conference at Hotel Sainte Claire, San Jose, Calif. on Feb. 11, & 12, 1954. 2-day meeting will be informal & consist primarily of agenda of subjects prepared by a "Discussion Committee." Lyndon Farwell, 1st vice pres. of association will conduct sessions & will be assisted by Richard D. Crowe, Dos Palos Tel. Co.; Hal O. Davis, Los Gatos Tel. Co., Alden C. Knapp, Sanger Tel. Co.; William G. Sebastian, Kerman Tel. Co.; & Donald H. Strahl, Gilroy Tel. Co. Hotel reservations should be made directly with Hotel Sainte Claire not later than Feb. 1, 1954. In making reservations, mention association meeting.

CHAIRMEN OF USITA COMMITTEES NAMED FOR 1954. New Chairmen for several major committees of U. S. Independent Telephone Association (USITA) have been appointed by USITA Pres. Warren B. Clay & approved by association's Executive Committee in completing slate of 25 committees to function for 1954. Lewis F. Shepherd, pres. of General Tel. Co. of Pennsylvania, is chairman of National Defense Committee. Clyde McFarlin, who heads Montezuma (Iowa) Mutual Tel. Co., directs Employment Relations Committee, while Daniel S. Seitz, of York (Pa) Tel. & Tel. Co., is chairman of Plant Committee. Hugh A. Barnhart, of Rochester (Ind.) Tel. Co., heads Bell Acquisitions Committee. Mr. Clay, as USITA Pres., heads association's Executive Committee for 1954. Other committee chairmen are as follows: Accounting, E. J.

Please Turn To Page 16

NORTH

The SILENT HOUSE WITH MANY VOICES

Though seldom a word is spoken within its walls, it carries more conversations than any building in town. The butcher, the baker, the defense goods maker, the fire department and order taker, all would find normal living impossible without the speed and distance lent to their voices by the silent servant in residence here.

YOU recognize this description of an automatic telephone exchange. However, unless you have seen North "All Relay" automatic systems in use, analyzed their low overhead cost and high ratio of subscriber satisfaction, you can't fully appreciate this story. We'd like to take you behind these fancy words with some hard facts; show you how much North wholly unattended switchboards can mean to your community, your management peace of mind and your company profits. We would like to prove that for silent, minimum-supervision telephone switching you cannot beat . . .

NORTH *All-Relay* AUTOMATIC EXCHANGES

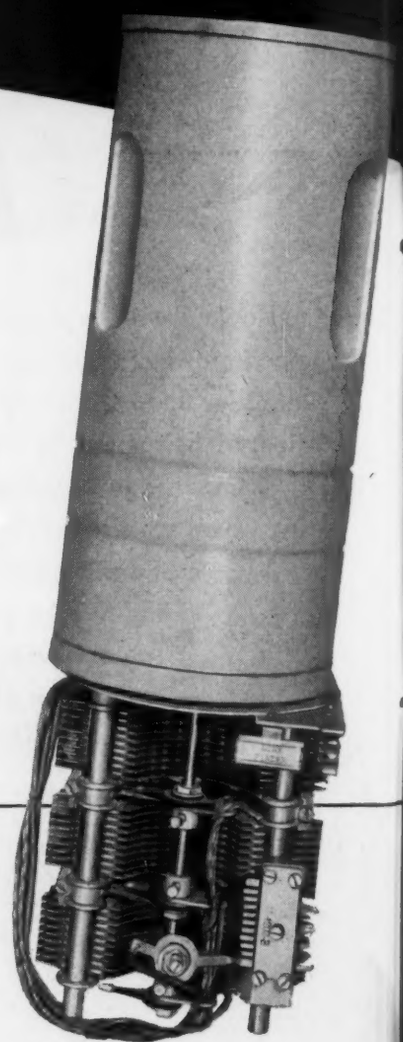
THE NORTH ELECTRIC MANUFACTURING COMPANY

Originators of ***ALL RELAY*** *Systems of Automatic Switching*

655 South Market Street, Galion, Ohio, U. S. A.

KELLOGG presents

FEDERAL STEP-BY-STEP DIAL SWITCHING EQUIPMENT



For dial central office requirements of any size — for the larger private automatic branch exchanges . . . Federal's Step-By-Step Switching Equipment provides maximum dependability of performance, coupled with flexibility of facilities for matching variable service needs.

- ***Long Life, Low Cost Operation***
- ***Ease of Maintenance***
- ***Simplicity of Equipments and Circuits***

To provide modern dial telephone service for small towns and communities, operating companies can depend upon Federal's Step-By-Step Community Dial Exchanges (CSX) for reliable and economical performance up to 900 lines. Federal's rugged Step-By-Step switching equipment is designed and built for

- ***Compact Space-Saving Arrangement of Equipment***
- ***Trunking Flexibility***
- ***Ready, Low-Cost Expandability for Increased Station and Traffic Requirements***

The MSX type of switching equipment is designed to accommodate economically any required line capacity, ranging from 500 to 600 lines, to as many as the telephone requirements of a large city exchange. The maximum line capacity of a Federal MSX single office unit is limited only by subscriber station loop dialing and transmission tolerances, and by economic factors of the outside plant distribution system. Intra-exchange trunking of any extent required for switching peak traffic loads is provided with the MSX arrangement. The wide trunking and traffic carrying flexibility of MSX equipment likewise applies to the number and size of trunk groups connecting with other exchanges.

- STEP-BY-STEP EQUIPMENT means high service standards.
- MEET GROWTH REQUIREMENTS QUICKLY AND EASILY
- ECONOMICAL — DEPENDABLE
- EACH SWITCH IS A SEPARATE UNIT — EASY TO CHECK AND ADJUST
- STEP-BY-STEP — EFFICIENT FOR ALL SIZES AND TYPES OF SERVICE
- STEP-BY-STEP CIRCUITS ARE EASY TO UNDERSTAND

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Please send full information covering Federal STEP-BY-STEP Equipment

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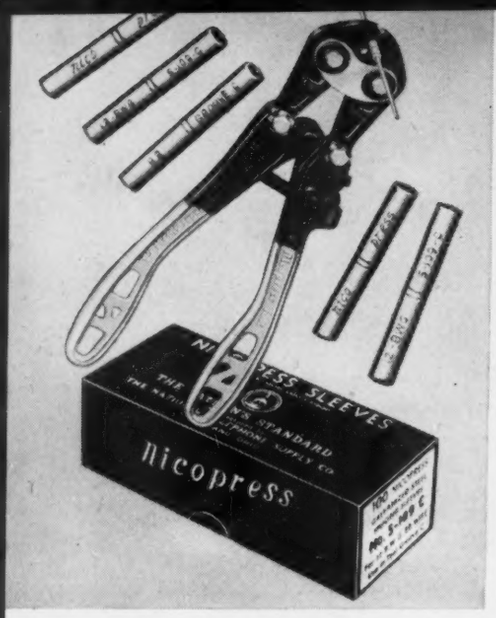

Simple, Quick and Sure! For splicing two wires of different sizes, there's nothing simpler than using Nicopress reducing sleeves and the Nicopress 31-DC tool. Splices are always tight and strong. Made by the NATIONAL TELEPHONE SUPPLY CO.

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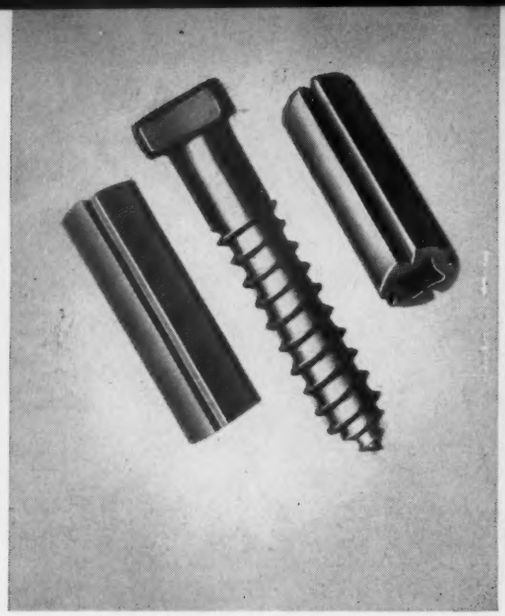
Time Proven—for 60 years Exide Batteries have been serving telephony! The Manchester positive plate with its button type construction provides long life . . use Exide Manchex for all your battery requirements. ELECTRIC STORAGE BATTERY CO.



Versatile Plastic Screw Anchor meets needs of telephone industry. For use in all materials from plasterboard to concrete, indoors and out. Outstanding bonding and fusing action. No special tools required. Savings up to 70%. HOLUB INDUSTRIES, INC.

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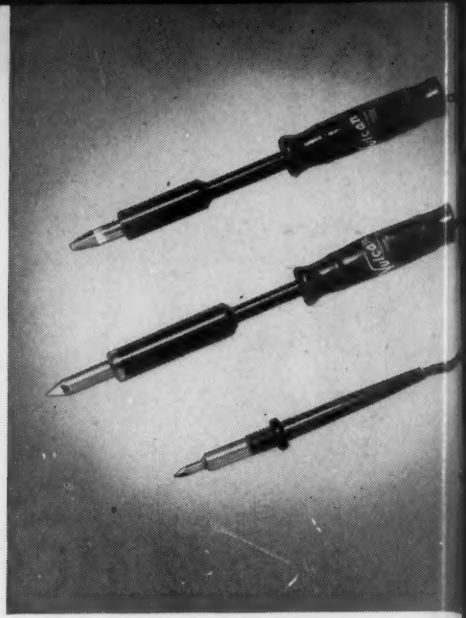
First Choice of the Telephone Industry! The Raytheon RectiChargeR is fully automatic, maintains constant output voltage regardless of variation of load and line voltage. Never overcharged or undercharged, batteries last longer. RAYTHEON MFG. CO.



You'll Find Soldering is Easy . . . workmanship neater with famous Vulcan Soldering Irons. Available in five sizes—either plug or screw tip. The high-powered heating element assures even proper heat and long service. VULCAN ELECTRIC COMPANY.

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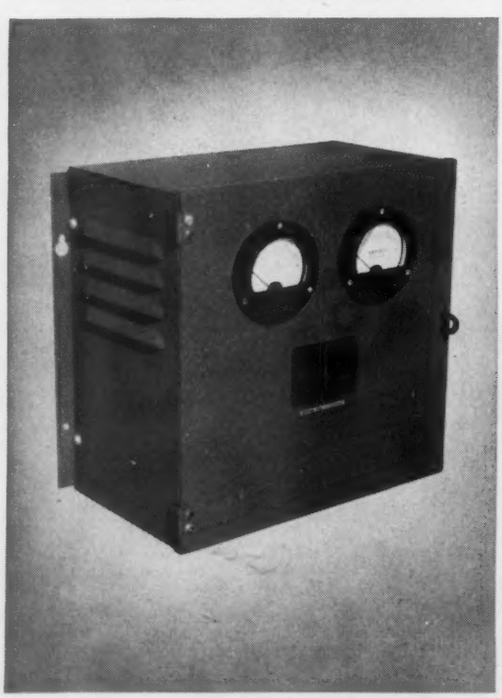
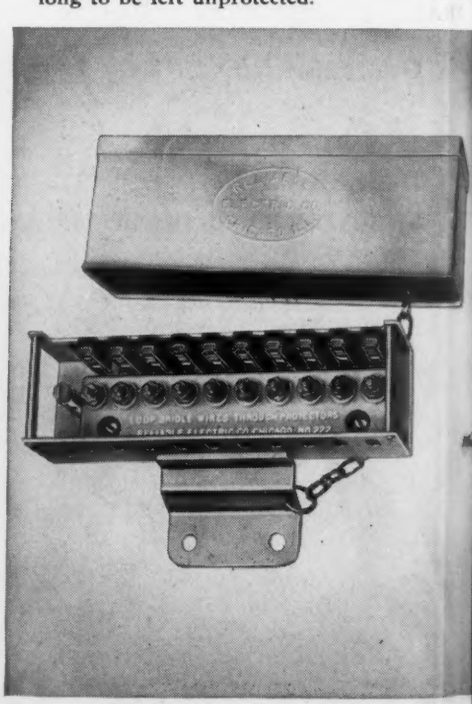
For Dependable Protection use RELIABLE ELECTRIC CO.'s No. 222 Outdoor Arrester with its self-cleaning sawtooth discharge blocks. Used with unprotected cable terminal where open or drop wire leads are too long to be left unprotected.





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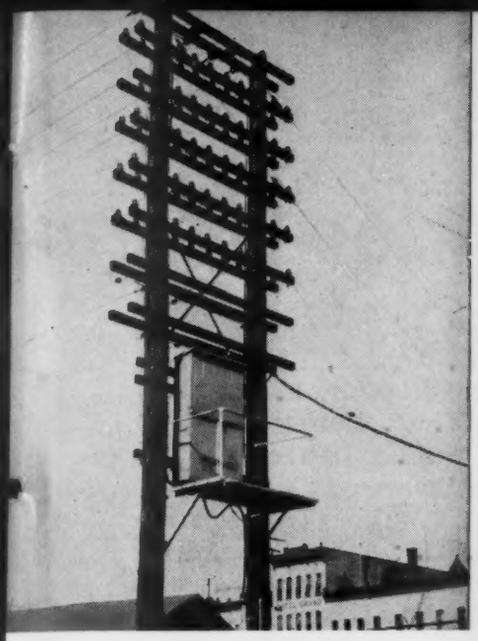

Economy in Overhead Construction is assured when crossarms made by the CONTINENTAL CROSS-ARM COMPANY, INC., are a part of your wire and pole installations. Fully seasoned American woods — built to sound standards of dependability.

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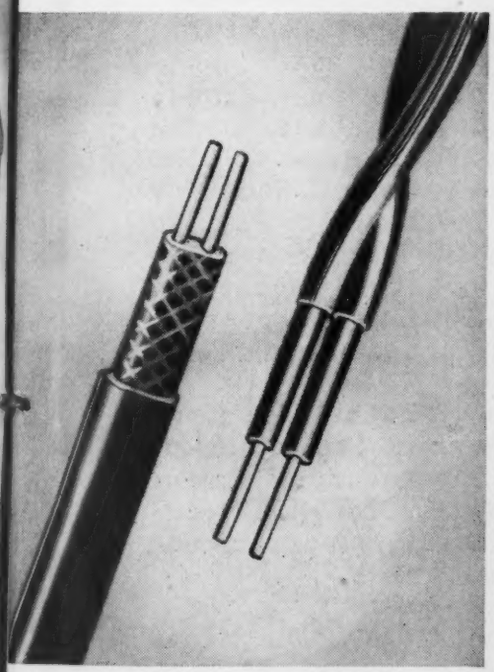
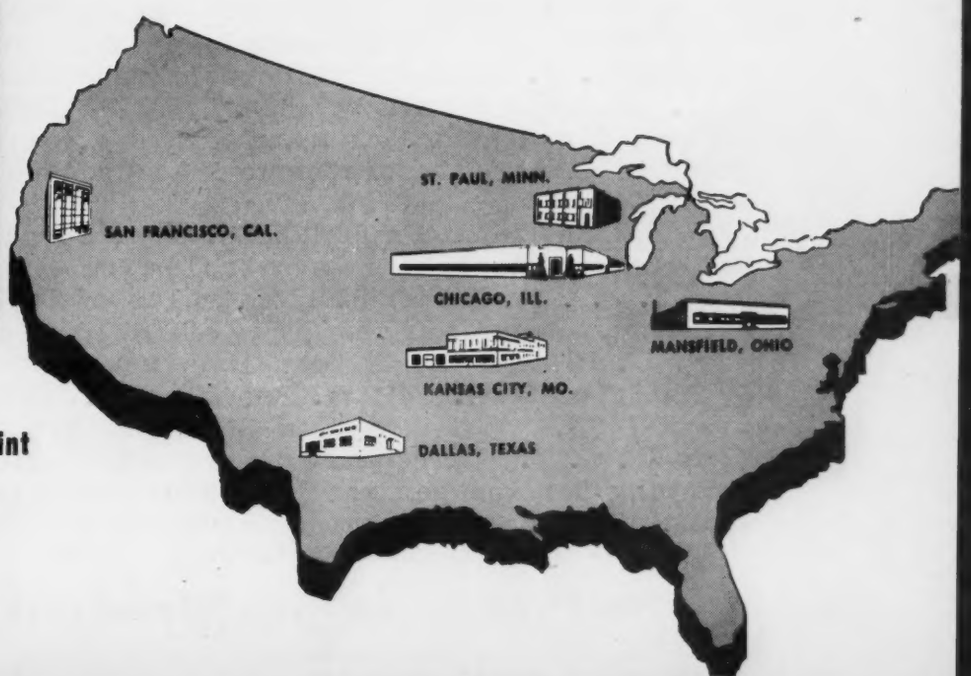
Lasts 30% Longer! Long service life and low plant costs go hand-in-hand with the installation of ENDURPRENE—The Neoprene Drop Wire available in Copperweld and bronze. Flexible, easy to handle. GENERAL INSULATED WIRE WORKS, INC.



KELLOGG

HEADQUARTERS FOR SUPPLIES

You will save time and shipping costs and get guaranteed quality when you make Kellogg your only source for Line Supplies. Delivery service is fast—Kellogg has 6 conveniently located warehouses and more than 100 supplier distribution points throughout the country. Your order is shipped from the location nearest you.



Your Nearest Kellogg Shipping Point Is Never Far Away!

Ward, Lima, Ohio; Advertising, J. Hartwell Jones, Tampa, Fla.; Commercial, Kenneth L. Lawson, Lincoln, Neb.; Membership, B. L. Fisher, Martinsville, Va.; Small Company Pension Plan, W. C. Henry, Bellevue, Ohio; Personnel, Merle M. Hale, Lincoln Neb.; Liaison with Private Communications Systems, Mr. Lawson; Problems of Small Companies, Mr. Henry; Radio Service, C. H. McLean, Chicago; Subscriber & Operator Toll Dialing, L. W. Hill, Tarboro, N. C.; Tax, Donald C. Power, New York; Toll Compensation & Settlements, W. Roy Jarmon, Spokane, Wash.; & Traffic, George W. Rose, Tampa, Fla. Carl D. Brorein, pres. of Peninsular Tel. Co., Tampa, Fla., heads Task Force on Independent Telephone Industry Institutional Advertising, while Walter O. Trettin, of General Tel. Co. of Illinois again is Chairman of Task Force on Proposed NARUC Service Rules.

NO AGREEMENT REPORTED ON TIMING OF TAX REVISIONS. No decision was reported last month on difference of opinion between Eisenhower administration leaders & top Congressional taxwriting officials on handling of revenue legislation in next session of Congress. The administration, it is understood, wants to make tax revision a single package, incorporating both changes in internal revenue code & revisions in tax rates. Chairman Daniel Reed (R., N. Y.) of House Ways & Means Committee prefers to take up code changes first, early in session, & get into corporation income & excise rates after technical revisions are out of way. Administration thinking on excises, as previously reported, is still along lines that tax base should be broadened to cover more items, with adjustments in rates to take care of some of more glaring inequities. Outcome on Social Security taxes is equally obscure, & only thing certain is that rate will go up to 2% on employer & employee unless Congress halts it retroactively. Chairman Reed is now in favor of permitting boost to become effective, while administration would like to hold line at present 1-1/2% on employer & employe.

SIGNAL CORPS RELEASES TRANSISTOR DATA. Copies of latest issue of basic specifications on transistors & related devices can be secured from U. S. Army Signal Corps' Evans Signal Laboratory, Belmar, N. J. Requests should be sent to Chief Therminocis Branch. Document is for guidance of manufacturers, contractors & suppliers engaged in diode & transistor work & as reference material.

HELPFUL LITERATURE FOR YOUR FILES:—New, 20-page booklet — "Microwave Nomograms & Charts" — is available from Airtron, Inc., Dept. H. Linden, N. J. . . . Folder EG 1153, released by Katolight Corp., Mankato, Minn., describes new group of 1800 rpm emergency power generators . . . 12-page catalog descibes new Leich 700 telephone. Write Leich Sales Corp., 427 W. Randolph St., Chicago 6, Ill. . . . Brochure X-1463, available from Remington Rand, Inc., 315 4th Ave., New York 10, N. Y., thoroughly describes practical system of Revenue Accounting for Independent telephone companies . . . Paper on "Natural Aging of Neoprene Jacketed Telephone Drop Wire" prepared by R. H.

Please Turn to Page 20

Want Both PEAK PERFORMANCE and LOWEST COST for your RURAL LINES?

. . . and get ALL these important advantages

A new Copperweld* development, the O-Eighty-Thirty (diameter .080"—30% conductivity) now makes it possible to have the advantages of Copperweld on your short subscriber loops and secondary toll lines at lowest cost.

The high tensile strength of O-Eighty-Thirty permits safe, economical long-span construction formerly obtainable only with larger, heavier wires. Its light weight means easier, faster handling plus economies in construction and shipping costs. In addition, Copperweld has excellent transmission qualities at voice frequencies and is the only high-strength conductor that can be effectively converted to carrier circuits when expanded facilities are required.

Plan now to build your new rural lines with Copperweld O-Eighty-Thirty Telephone Line Wire. You'll soon discover this new, high-strength, non-rusting rural conductor is unequaled in economy.

Write us today for prices, sag data and staking tables—there's no obligation.

*Trade Mark

- Low Material Cost
- Low Construction Cost
- Minimum Maintenance
- Good Conductance
- Permanent Strength
- Long, Rust-Resisting Life
- Safe Long Spans
- Savings on Poles and Hardware
- Light Weight
- Easy to Handle

COPPERWELD STEEL COMPANY
WIRE AND CABLE DIVISION • Glassport, Pa.
SALES OFFICES IN PRINCIPAL CITIES

GRIP-FLEX 38
The Ideal Insulator Tie For Use With All Copperweld Line Wire

For O-Eighty-Thirty, Order No. 1012 Grip-Flex 38

Copperweld TRADE MARK

Diameter .080" 30% Conductivity

LINE WIRE

SOLD BY LEADING DISTRIBUTORS

The only conductor combining the strength of steel with the conductivity and permanence of copper!

DETROIT PUBLIC LIBRARY

Have You a Case of ADVERTISINGITIS?

● As your telephone directory increases its advertising revenues, your management problems multiply. Details pile up at an alarming rate. You save yourself headaches . . . and are sure of building a better directory . . . when you engage the services of a specialist. You are invited to call Loomis today.

KNOW-HOW TO SOLVE YOUR DIRECTORY PROBLEMS

"Where to Call"

● 666 cities and towns in 20 states are served by the 234 directories that retain Loomis services.

LOOMIS ADVERTISING COMPANY

FT. WAYNE, IND.
229 E. Berry St.... EAstbrook 3477

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506 Olive... GArfield 3700

OMAHA, NEBR.
Omaha Nat'l Bank Bldg.... ATlantic 0188

KANSAS CITY, MO.
810 Baltimore... HArrison 1270

PHILADELPHIA, PA.
1201 Chestnut... Rittenhouse 6-4400

BALTIMORE, MD.
1229 North Charles... Vernon 7-0642

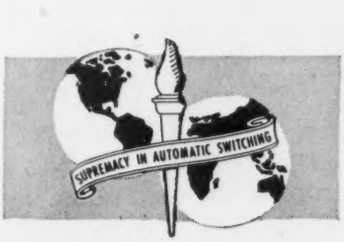
Cutovers were never like this!

Men of Karditza, Greece, in "Evzone" costume, celebrate Strowger Automatic Cutover with traditional dance.

International Automatic Electric engineer supervises installation of 300 individual and 100 PBX lines of Strowger equipment which tie in with national and international telephone networks. Ultimate exchange capacity is 1500 lines.

They danced in the streets of Karditza, Greece, not long ago, to celebrate the cutover of a new Strowger Automatic exchange. There was good reason for joyful celebration, for this cutover climaxed years of reconstruction of the war-torn city. Karditza's new exchange now stands as a monument to US-Greek friendship. The Strowger equipment was engineered and manufactured by Automatic Electric and installed and cut over under the supervision of an International Automatic Electric expert. Such services and many others are constantly provided by the worldwide engineering and manufacturing facilities of International Automatic Electric. Take advantage of this valuable, experienced assistance. Let us help you with your problems!

ANOTHER ADVANCE MADE POSSIBLE THROUGH INTERNATIONAL AUTOMATIC ELECTRIC SERVICE



INTERNATIONAL **AUTOMATIC ELECTRIC** CORPORATION

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INTERNATIONAL AUTOMATIC ELECTRIC SALES CO., S. P. A. Via di San Basilio 41, Rome, Italy

Export Distributors For:

AUTOMATIC ELECTRIC COMPANY, Chicago, U.S.A. • AUTOMATIQUE ELECTRIQUE, S.A., Antwerp, Belgium
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and other manufacturers
Selling Companies and Agents Throughout the World

(Continued From Page 16)

Dudley & C. A. Larson of Whitney Blake Co., New Haven 14, Conn., is now available from company. Paper was delivered at 2nd Annual Symposium on Technical Progress in Communication Wires & Cables sponsored by Signal Corps Engineering Laboratories at Asbury Park, N. J., Dec. 14, 1953 . . . Various dry batteries designed for industrial use, including types suited for railroad & public utility service, are illustrated & described in new catalog-style leaflet now available from General Dry Batteries, Inc., Cleveland 7, Ohio. Line includes telephone-telegraph battery, 6-volt multiple unit, & batteries for portable lights, lanterns & flashlights.

NORTH FLA. COMPANY ORGANIZES. Organization of North Florida Telephone Co. moved forward at Live Oak, Fla., last month as officers & directors of the new firm were named. Otto Wettstein III has been selected as pres. with Sam Gibbs as vice pres., Alfred T. Airth, sec. & Louis J. Day, treas. Chairman of board of directors is Otto Wettstein, Jr. with Fred J. Green & E. T. Horne as directors.

NARUC EXECUTIVE COMMITTEE TO MEET JAN. 22. National Association of Railroad & Utilities Commissioners (NARUC) Executive Committee, under Chairman W. F. Whitney, Wisconsin Public Service Commissioner, will hold its mid-winter meeting, Jan. 22, at Raleigh Hotel, Washington, D. C. During meeting, dates will be set & headquarters hotel will be selected for Association's 1954 annual convention, which is to be held in Chicago, & matters of legislation of interest to group will be discussed. Also, R. Everette Kreeger, NARUC assistant general solicitor, is expected to be named secretary of NARUC, succeeding Austin Roberts., Jr., association's new general solicitor.

U. S. TELEPHONE DEVELOPMENT CONTINUES TO LEAD WORLD. Telephone development in United States continues to lead world, both in number of telephones in service & density of telephone installations, latest issue of "Telephone Statistics of the World," made available by the American Telephone & Telegraph Co. discloses. Figures as of Jan. 1, 1953, show that U. S. had 30.3 telephones per 100 population, leading its nearest rival, Sweden, by nearly 4 points. Principal countries having 15 or more telephones per 100 population, in addition to the U. S. are Sweden, 26.4; Canada, 22.9; Switzerland, 20.9; New Zealand, 20.9; Denmark, 18.1; Australia, 15.3; and Norway, 15.1. Of world total of 84,200,000 telephones on Jan. 1, 1953, U. S. had 48,056,000. Since that time, 50,000,000 mark has been reached. United Kingdom had 5,915,000; Canada, 3,352,000; German federal republic, 2,976,000; France, 2,644,000; Japan, 2,250,000; Sweden, 1,889,000; Italy, 1,540,000; Australia, 1,342,000; Switzerland, 1,012,000.

RECENT SALES & PURCHASES:—Lamdert D. Miller, owner of the Yamhill & Sunnyside Tel. Co., Sunnyside, Ore., purchased Damascus Tel. Co., Inc., Damascus, Ore. Miller plans $170,000 automatic conversion project

Please Turn to Page 24

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THE ALL-PLASTIC CABLE

CHEMICAL RESISTANT

Ankoseal defies the chemicals—oils, acids, alkalis and other destructive substances that attack non-plastic cables. Use Ankoseal on your next job.

Ankoseal also is—

WEATHERPROOF
LIGHTER WEIGHT
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SUCCESSOR TO THE ANSONIA ELECTRICAL COMPANY
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SEND IT *Written* OVER *Desk-Fax*

The New Method of Intercommunication!

This unique business aid changes the whole concept of office and industrial intercommunication. Now *written* messages can be transmitted electronically between any two locations connected by a telephone wire . . . in the same building . . . or miles apart! Just type, write, print or draw in pen or pencil on the sending blank, slip it around the cylinder and press a button. In two minutes the sending Desk-Fax produces an accurate facsimile of the message at the receiving Desk-Fax. No other equipment is needed . . . each unit serves as transmitter and receiver. No operating noise . . . no special processing of message blanks. Sender keeps his original . . . addressee has a permanent facsimile for filing or rerouting. Desk-Fax, product of Creed & Company, Ltd., associate of International Telephone & Telegraph Corporation, illustrates ISE's policy of offering the most advanced, the finest products and equipment in every field of communications. Whatever *your* requirements in communications—look first to ISE!

FACTORIES IN SOUTH AMERICA: Cia. Standard Elec. Argentina, S. A. Ind. y Com., Buenos Aires, Argentina • Standard Electrica, S. A., Rio de Janeiro and São Paulo, Brazil • Cia. Standard Electric, S. A. C., Santiago, Chile.

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International Standard Electric Corporation

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67 Broad Street, New York 4, N. Y., U. S. A.

Central telephone exchange equipment for installations of any size, automatic or manual.

Radio aids to air navigation . . . complete airport communications and lighting equipment.

Microwave communications systems and equipment for pipelines, utilities, railroads, telephony, aviation.

Cable, power tubes, conduits, transformers—equipment for every electric power need.

All equipment for television and radio broadcasting and receiving, point-to-point communication.

PRODUCTION RESUMED IN 3 DAYS

after $1,000,000 fire at C&D Batteries, Inc.

C & D President, Leon A. Doughty pulls switch to start charging operations.

C & D's block-long plant in Conshohocken, Pa. at the height of the fire, Sunday, November 29.

Despite a $1,000,000 fire that destroyed the main buildings, offices, engineering department, and laboratory of C & D's plant on Sunday, November 29, 1953, production was resumed in three days.

On Tuesday, December 1, space was leased in a nearby plant for setting up new production facilities. On Wednesday, December 2, new batteries that had escaped the fire were being charged on new lines, and grid casting was begun next morning.

The new facilities were in operation on December 10. The salvaged portions of the main plant and the leased facilities were combined to achieve full production by Christmas.

We thank our customers for their patience in bearing with us during delays in shipping, and assure them that the high quality of C & D products is being maintained. *We are deeply grateful to our many friends who have generously given us their kind understanding and support.*

Philadelphia Inquirer Photos

Two Men Seized in Bakery Holdup

Two holdup men were captured by police late last night, within 15 minutes after they robbed a bakery, on Dryrum ave. near Oster st., of $122.

The robbery occurred in Vern's Bakery, at 9718 Dryrum Aven[illegible] the place at 10:35 P. M. The younger one held his hand in [illegible] coat pocket[illegible]

Auto Strikes Man Carrying Box

A man carrying a bo[illegible] 93rd st. near Putnam [illegible] short[illegible] after

30 M Stick

PAN[illegible] day) (U[illegible] Korea[illegible] refused[illegible] ing to resisted[illegible] tion.

It wa[illegible] home" have man. AWA[illegible] W[illegible] more[illegible] cans a[illegible] M[illegible] B. O[illegible] Cov[illegible] sio[illegible] nc[illegible] pa[illegible] in[illegible] l[illegible] toda[illegible] the [illegible] fate[illegible] conf[illegible] TA[illegible] E[illegible] conf[illegible] A[illegible] the[illegible] on[illegible] pe[illegible]

C&D BATTERIES, INC.
of Conshohocken, Pa.
SALES AND SERVICE OFFICES IN PRINCIPAL CITIES FROM COAST TO COAST

NEWSLETTER
TELEPHONE ENGINEER

(Concluded From Page 20)

. . . Stockbridge (Mich.) Tel. Co. purchased Lindella Tel. Co., Gregory, Mich. . . . W. E. Nunneley & Sons, St. Jo, Texas, purchased Floresville (Tex.) Rural Tel. Co. Name will be changed to Wilson County Tel. Co. . . . Raritan (Ill.) Swbd. & Tel. Co. voted to sell its exchange to McDonough Tel. Co-op. . . . Oliver S. Dyson, gen. mgr. Wilkes Tel. & Electric Co., Washington, Ga., announced completion of negotiations for purchase of Crawfordville Tel. Co. & certain lines of Georgia Continental Tel Co. . . . Reservation Mutual Aid Tel. Co., Parshall, N. D., granted authority to purchase Ft. Berthold Farmers Mutual Tel. Co., Mankoti; Parshall (N. D.) Tel. Co.; Mountrail Tel. Co., Plaza; Farmers Rural Tel. Co., Garrison; Kenmare Farm Lines, Kenmare . . . Bricelyn (Minn.) Tel. Co. purchased Clayton (Minn.) Tel. Co.

EXPANSIONS & IMPROVEMENTS: – Ray Sheehan, div. mgr., General Tel. Co. of Calif., Lindsay, announced Fowler, Calif. exchange will be converted to dial May 9 . . . Darrell Coffey, mgr. Kalama (Wash.) Tel. Co. reports completion of company's new building. Exchange being converted to dial . . . Bill Bamburg, Gulf States Tel. Co. mgr. at Gatesville, Texas, announced completion of changeover to common battery service . . . Conroe (Tex.) Tel. Co. constructing new exchange building; will convert to dial Sept. 1 . . . D. E. McGregor, mgr., Nebraska Central Tel. Co. reports completion of dial system at Shelton, Neb.

RURAL CO-OP ACTIVITIES: – Wes-Tex Tel. Co-op, Stanton, Tex., awarded contracts to H. S. Blocker for construction of 4 buildings to house dial equipment . . . West Kentucky Rural Tel. Co., Mayfield, Ky., requested Kentucky Public Service Commission approval of its plans to establish co-op telephone system that will serve 3,887 subscribers . . . Govan Mills, pres., South Central Tel. Assoc., Inc., Sun City, Kans., announced REA approval of its loan application . . . Reno Tel. Assoc., Hutchinson, Kans., plans new dial system to serve Pretty Prairie, Castleton, Partridge, Arlington, Sylvia & Cunningham, Kans. D. W. Wright, Sterling, Kans., is pres. . . Woodrow W. Barker, Mgr. of Mountain Rural Tel. Co-op, West Liberty, Ky., announced construction has started on co-op's $447,000 service extension project . . . Roberts County Farmer's Co-op Tel. Co. organized at New Effington, S. D.

DEATHS OF INDUSTRY MEMBERS: – W. A. Rosenbaum, 61, at Spencer, Ia. He was with Western Union Tel. Co. for 40 years, retired in 1952, was div'n. contract mgr. at time of retirement . . . P. R. (Pete) Kauffman, 59, at Jefferson City, Mo., Dec. 21 . . . Kemp Haythorne, 55, mgr. new products sales, electrical wire & cable dept., United States Rubber Co.

Ray Smith

Ray W. Smith, Editor

INDUSTRY OUTLOOK

"Vital news is not what has happened. Vital news is what is going to happen."

BUSINESS SPENDING: — Commerce Department and the Securities and Exchange Commission have predicted business spending for new plant and equipment, a sustaining factor in the national economy, will rise to a new record in the first quarter of 1954. Their forecasters say total of $6,490 million will compare with a previous peak of $6,147 million reached in the first quarter of 1953. Significance of the report, issued by the two government agencies, is that any decline in outlays would begin after next March. Previously a 1954 decline of 5 per cent had been predicted by Government economists. A new survey for all of 1954 will be issued in February.

Taxes are like the old fable of the camel which first stuck its nose in the tailor's tent. The camel wound up inside and the tailor out in the cold.

THE ECONOMY: — The Eisenhower Administration has almost completed its blueprint for an anti-recession program. Secretary of Labor James P. Mitchell chose the United Auto Workers—CIO Employment Conference in Washington to describe the Administration's economic objectives as follows:

"To maintain confidence on the part of the investor, producer, worker and consumer in the continuing soundness of the United States economy.

"To maintain a favorable climate for private enterprise, maintaining a 'floor' under the level of economic activity, with dependence upon private initiative, including collective bargaining, to attain continuing economic growth; and

"To insure that individuals are protected from serious adverse effects through such measures as unemployment insurance, old age and survivors insurance, etc."

To carry out such a program, the Administration is readying a six-point program. Secretary Mitchell enumerated these six points as follows:

(1) Tax reductions; first of all, of course, those that became effective Jan. 1. However, he also included a hint that excise taxes will be lowered on schedule.

(2) Tax devices to encourage business investment for expansion. He did not say so in as many words, but this clearly was in reference to changes in depreciation policies.

(3) Stimulation of credit if and when private lenders should require "wide-scale Federal insurance of loans," which is not yet the case and may never become necessary. As Mr. Mitchell expressed it: "The Administration is now considering the most effective way for it to participate in loan guarantee programs should private capital sources begin to shrink." Probably, such a policy would include steps to stimulate mortgage credit.

(4) Preparation of public works programs. Because of the long lead-time required for the start of such programs, "it is necessary that we settle on as many of these matters as we can now with respect to public works to be undertaken in the event of a private investment slump. Such planning is proceeding."

(5) Careful public debt management "so as to make sure that our actions in that field do not dry up in the sources of credit or make borrowing too costly for private, State or municipal borrowers."

(6) Improvements in the unemployment insurance system, concerning both the benefit rate and the duration of benefits, as well as improvement in the coverage and the minimum wage rate provided under the Fair Labor Standards Act.

It is interesting — but hardly pleasantly so — that once a tax is levied as an emergency, it soon becomes permanent — no matter what party is running the show.

U. S. AGENCIES: — Major surgery on the Federal Government, to cut its 70 Independent agencies down to 30 or fewer, was proposed to President Eisenhower in a privately financed report made public last month.

The Temple University Survey of Government Reorganization was supplied to Mr. Eisenhower without publicity after his election in 1952. A few of its 126 recommendations were embodied in the 10 reorganization plans which Mr. Eisenhower proposed and Congress accepted last year.

The survey urges reorganization of the Labor Dept. It would start with an Act of Congress rewriting the 1913 law which instructs the department to "foster" and "promote" the welfare of wage earners. The department must earn recognition, it was declared, as a

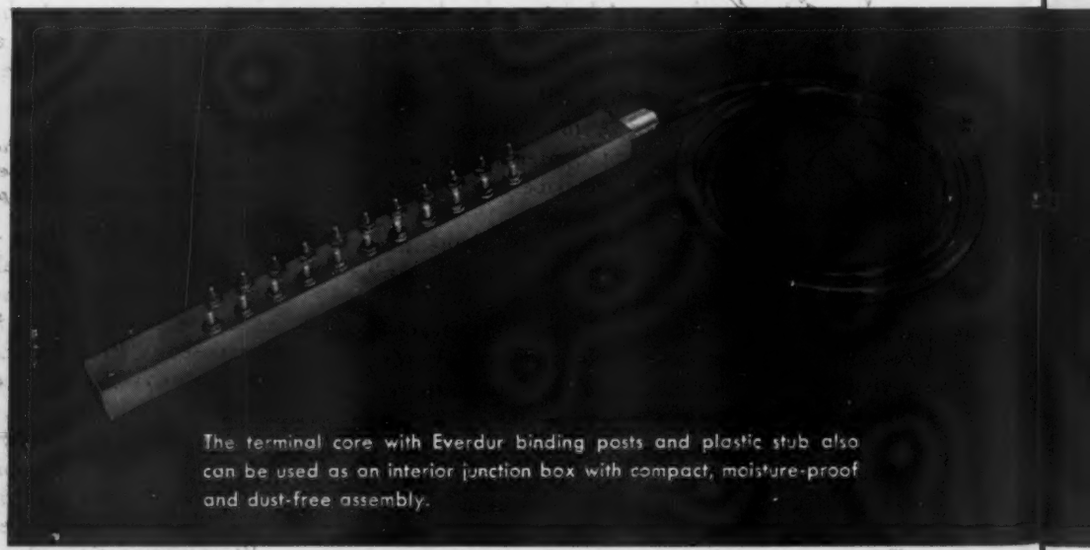
Please Turn To Page 28

AGAIN COOK IS FIRST

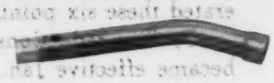
Now!

Stranterm with Plastic Stub

The new Cook Stranterm cable terminal with plastic stub completely eliminates the necessity of moisture blocks normally required when splicing paper wrapped, lead sheathed terminal stubs to plastic cable. The plastic stub adaptation was made possible by the successful imbedding of the plastic sheathed cable in a specially treated Polyester thermal setting plastic with fiberglas filler, which provides an indestructible, hermetically sealed moisture-proof terminal core. For the first time a cable terminal can now be supplied with either a lead or plastic sheathed interchangeable cable stub.



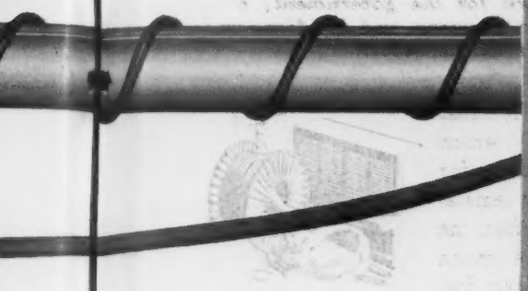
The terminal core with Everdur binding posts and plastic stub also can be used as an interior junction box with compact, moisture-proof and dust-free assembly.



New combination socket wrench which provides an easy means for removing or inserting the Minigap arresters, as well as the rapid termination of drop wires to binding post studs. Catalog No. 352-1252

Copyright 1953 Cook Electric Company

Compact, lightweight and easy to install



Flexibility is provided in that the 11 and 16 pair cable stub and core are interchangeable in the standard terminal housing. Left and right hand cable entrance to the terminal box is also possible. These alternate arrangements are accomplished by the removal and reinserting of one screw.

Drop wires are dressed and supported by means of three heavy stainless steel wire rings.

The quick opening cover lock and weatherproof cover design, coupled with the embossed Minigap snap-in sockets, spring bronze ground strip, and the neoprene self-adhering drop wire entrance seal, evidence the result of Cook Research and Development as applied to telephone apparatus.

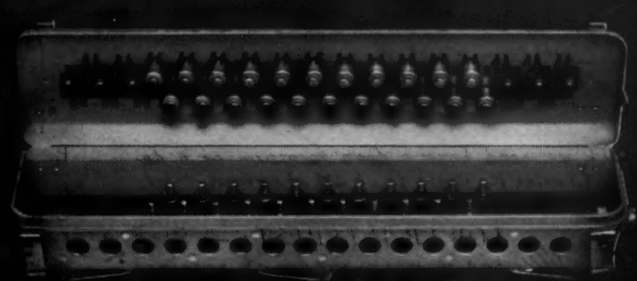
Stranterm also features an ingenious bell shaped cable nozzle which eliminates cable breakage due to excessive right angle bends.

We suggest that you order a sample Stranterm today and investigate the economies and improvements now made possible in your outside plant construction.

MINIGAP ACTUAL SIZE

This new protection method provides lightning protection for the pairs in service. The quick installation or removal of the new Cook Minigap Lightning Arrester provides a flexible system of selective discharger protection.

Minigap with the carbon to carbon gap, instantaneous acetate burn out and self-grounding features, represents the most advanced high potential discharger for telephone line and cable protection.



The Stranterm is the only Strand Mounted Terminal which permits the installer to apply protection to the pairs requiring dischargers, or to install the same terminal unprotected as determined by the outside plant engineers.

No. of Pairs	Catalog No.
11 Pair	352-1250
16 Pair	352-1251
26 Pair	352-1256

MINIGAP 41-290

COOK ELECTRIC Company

Since 1897

2700 Southport Avenue Chicago 14, Illinois

★ ★ ★ ★ ★ ★ ★ ★ ★ ★

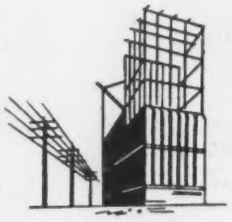
servant of the public at large rather than as a champion of labor.

Once this is done, the report said, the Labor Department should take over most duties of the National Labor Relations Board (NLRB) and the Federal Mediation Service, both now independent agencies.

The report also repeats with emphasis some of the "hot potato" recommendations of the first Hoover Commission — recommendations which Congress has voted down or has not yet acted on.

These include merger, in the Interior Department, of the Reclamation Service and the civil functions of the Army Corps of Engineers; the transfer of land management from the Interior Department to the Agriculture Department, and a wholesale shakeup of the Veterans Administration.

Unless there is a bigger slash in spending, the overall tax bite will show little change.



HOUSING: — Republican housing program, aimed at a million new homes annually and more dwellings for families of modest income, was readied for the President's consideration last month.

Government and industry sources said the many-sided program calls for continuance of a limited volume of publicly subsidized housing, liberalization of Federal mortgage insurance and Government-aided renovation of old houses.

The program was hammered out by the President's 23-member advisory committee on housing headed by Housing Administrator Albert M. Cole.

The committee's major goal had been to devise a program for maintaining new home starts at or near the million-a-year rate which the Administration believes essential to a prosperous economy and a healthy building industry.

President Eisenhower has indicated he will use the committee recommendations for his legislative program on housing to be delivered this month to Congress.

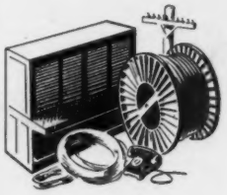
"I don't think we need have a deep recession or a depression." — Charles R. Sligh, Jr., NAM chairman.

LOWER INTEREST: — Bond and mortgage experts of insurance companies seem to be in general agreement that money and mortgage rates of interest will subside this year. This outlook came to light last month during a panel discussion before members of the Life Insurance Association of America, assembled for their 47th annual meeting at the Waldorf-Astoria Hotel, New York City.

According to the panel members — (1) lower business activity will result in decreased demand for business loans, and fewer flotations of corporate bonds, while an expected easy-money policy would increase the supply of capital seeking investment; and, (2) this should increase the demand for existing corporate bonds, raise their prices and reduce their yields. Much investment capital would also be channeled into other fields, such as Government bonds and municipals.

Donald Slichter, vice president of Northwestern Mutual, and Stuart F. Silloway, vice president of Mutual of New York emphasized their belief that, in the face of the 1954 elections, the Administration would adopt a soft money policy, adding to the supply of money seeking investment, and thereby further contributing to keep interest rates down.

"Two kinds of people work for the government; civil servants, who get sick leave, pensions, and holidays; and taxpayers, who don't." — H. C. Diefenbach.



DEPRECIATION: — Optional depreciation allowances — which have been sought by industry for years — appear slated for legislative approval in 1954. But the amount of relief may be much smaller than has been hoped for, according to accountants who have talked to members of Congress and the staff of the Treasury Department. The real root of the depreciation problem is the fact that depreciation allowances allowed in the past for income tax purposes, have been based on the original cost of the equipment, rather than on the present high replacement costs.

Congressional tax committees have been wrestling with the depreciation problem for months, in the hope of coming up with a proposal that will stimulate capital goods investments.

The main road block to depreciation reform is the size of the Federal deficit in 1954 and 1955. Accountants say the national deficit will probably block large scale relief. Chances are small that anything more than administrative reform will be accomplished. That means that users of equipment will be allowed more latitude — possibly 20 per cent more deductions than they have taken in the past. Where they have had a 5 per cent annual rate, they may be allowed to take 4 to 6%.

The national deficit problem is currently menacing optional or more adequate depreciation allowances, just as it upset the applecart back in 1931.

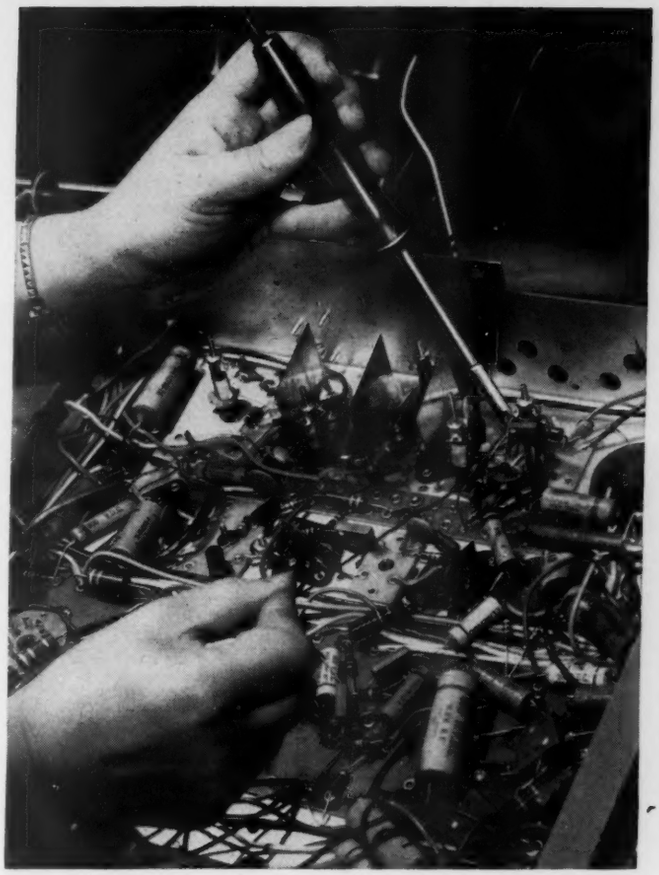
In that year, the Internal Revenue Service issued Bulletin F, which ostensibly showed the length of time industry was actually using its equipment was greater than the average time shown in depreciation schedules. On the basis of Bulletin F, the Roosevelt Administration tightened up on depreciation allowances in 1934, because the Government was in need of new sources of revenue. This took the form of Treasury Decision 4422, which required manufacturers to revise their depreciation allowances.

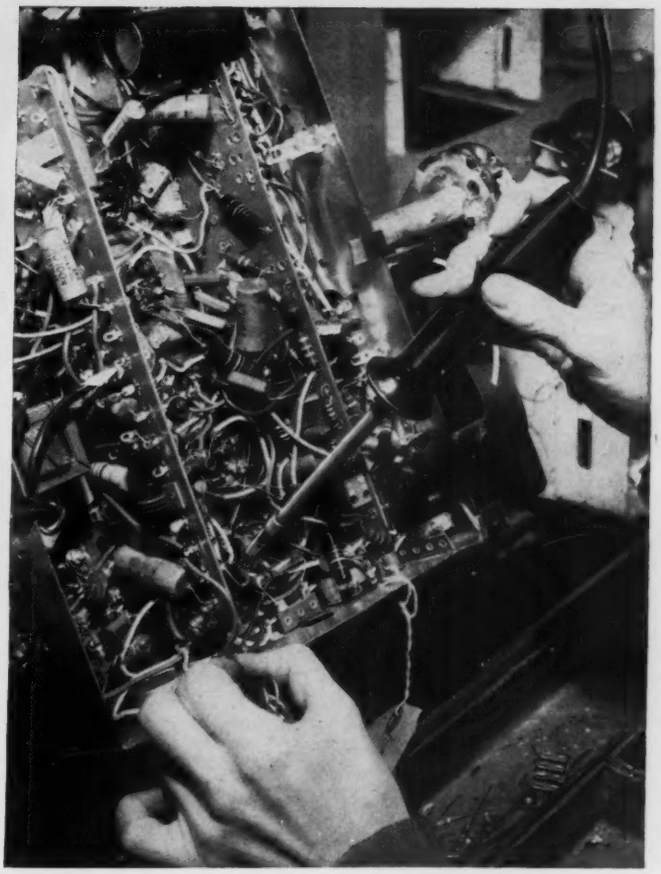
Few companies have since found it possible to claim larger depreciation costs than those set forth in Bulletin F.

Today, because of the large new investments forced on industry by obsolescence and competition, Bulletin F is completely out of date, manufacturers believe. Surveys have shown that most businesses are finding it difficult to put aside funds to pay for new equipment, largely because of the tax burden.

The "diminishing balance" type of depreciation

Please Turn To Page 30





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Now—2 G-E Irons for Hard-to-solder Places

FAST PRODUCTION WITH THE G-E LIGHTWEIGHT

Quick heat recovery and easy handling combine to give you quality production at high speed. The thin, $\frac{5}{16}$-inch diameter shank allows easy soldering where a bulkier iron can't reach or would cause damage to insulation and surrounding parts.

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Soldering difficult joints is as easy as writing with a pencil when you use the slender, 1¾-ounce, 6-volt midget iron. Power costs are cut to one-fourth those of a regular iron, and tip heat can be closely controlled with the optional four-tap transformer.

BOTH LIGHTWEIGHT AND MIDGET IRONS OFFER YOU:

Longer Service, Lower Maintenance—Extra long wearing Ironclad tips resist pitting and corrosion, giving you longer service for both high-speed repetitive production line soldering and intermittent work. General Electric Calrod* heaters provide dependable, efficient operation throughout their long life. The tip and heater unit is easily replaced by unscrewing it from the handle.

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For the complete story on the G-E Lightweight and Midget soldering irons contact your G-E Apparatus Sales Office or Distributor. Additional information is yours by mailing the coupon below.

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☐ GED-1583, G-E Lightweight Soldering Iron.

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Continued From Page 28

★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★

charge, such as has been used in Canada and other countries, is receiving study by Congress and the Treasury Department staff.

Under this system, a taxpayer could deduct as much as 25 per cent in the first year for depreciation. In the next year, he might charge off 20 per cent on the remainder of 75 per cent, or 15 per cent; in the third year, an even smaller percentage of the balance, and so on.

One executive said he believed that to accord adequate depreciation relief, whether in the form of declining balances or optional charges, the Government would have to be prepared to take a cut in revenue of $1.5 billion to $2 billion a year for at least a few years.

He said he was afraid that the Administration was not prepared to take that much of a cut in revenue, unless it was plain that capital investment needed some new type of stimulation to sustain business.

"Don't be forecasting evil unless it is what you can guard against. Anxiety is good for nothing if we can't turn it into a defense." — Meyerick.

TAFT-HARTLEY:—If House Labor Committee Chairman McConnell (R., Pa.) has his way, Taft-Hartley law's national emergency injunction provisions will be replaced by a series of alternative devices for settling major labor disputes.

"Cut and dried procedures do not lead to early settlements of troublesome disputes," Mr. McConnell told the Union League Club of Chicago last month. In event of a crippling strike, he said, the President should not be confined to using the present 80-day injunction provisions, but should be authorized to:

Ask Congress for special legislation to deal with walkout.

Appoint a board of inquiry to study and report on the dispute.

Ask the board to recommend fair and just settlement terms.

Try to persuade the parties to accept arbitration.

Direct an appropriate Federal agency to conduct a secret ballot election on the employer's last offer.

Tell the Attorney General to seek an injunction "for whatever period of time may be necessary to settle the dispute."

The House committee chairman, who is sure to play a major part in framing this year's T.-H. changes, if any are made, said union welfare funds should be supervised by state insurance commissions but that employers should be allowed, if they wish, to waive participation in administration of these funds.

The congressman declared himself opposed to any T.-H. change which would invalidate state "right-to-work" laws. These statutes ban all forms of union security. A dozen states have such laws, and last summer an ill-fated White House message to Congress on changing the law proposed that such laws be voided.

On the same states' rights question, Mr. McConnell said, "the states should have the right to govern the conduct of strikes and picketing within their borders." Recent Supreme Court rulings have held that states may not go further than Taft-Hartley in curbing strikes and picketing. Since Taft-Hartley touches on this field, the rulings say, the states must stay out of it where employers in interstate commerce are concerned.

"The year 1954 should go down in history as the period in which an effective start was made in cleaning up the monstrosity that passes as our federal tax system." — Rep. Reed (R-N.Y.)

BUSINESS FAILURES: — Although business failures are rising, most of the nation's economists say the increase has not yet reached a point which would indicate an early acceleration of the business downturn. Failures long have been considered one of the best short-range business indicators, but what actually counts, however, is not so much the number of commercial failures, but rather the amount of liabilities involved in them.

For 1953, estimated *Dun & Bradstreet,* the number of business failures will increase 14.5 per cent but will fall short of the 9,162 failures chalked up in 1950 or the 9,246 registered in the postwar peak year, 1949. At worst, the final figure for 1953 will still be far removed from the 14,768 failures in 1939 or the record of 31,822 in 1932.

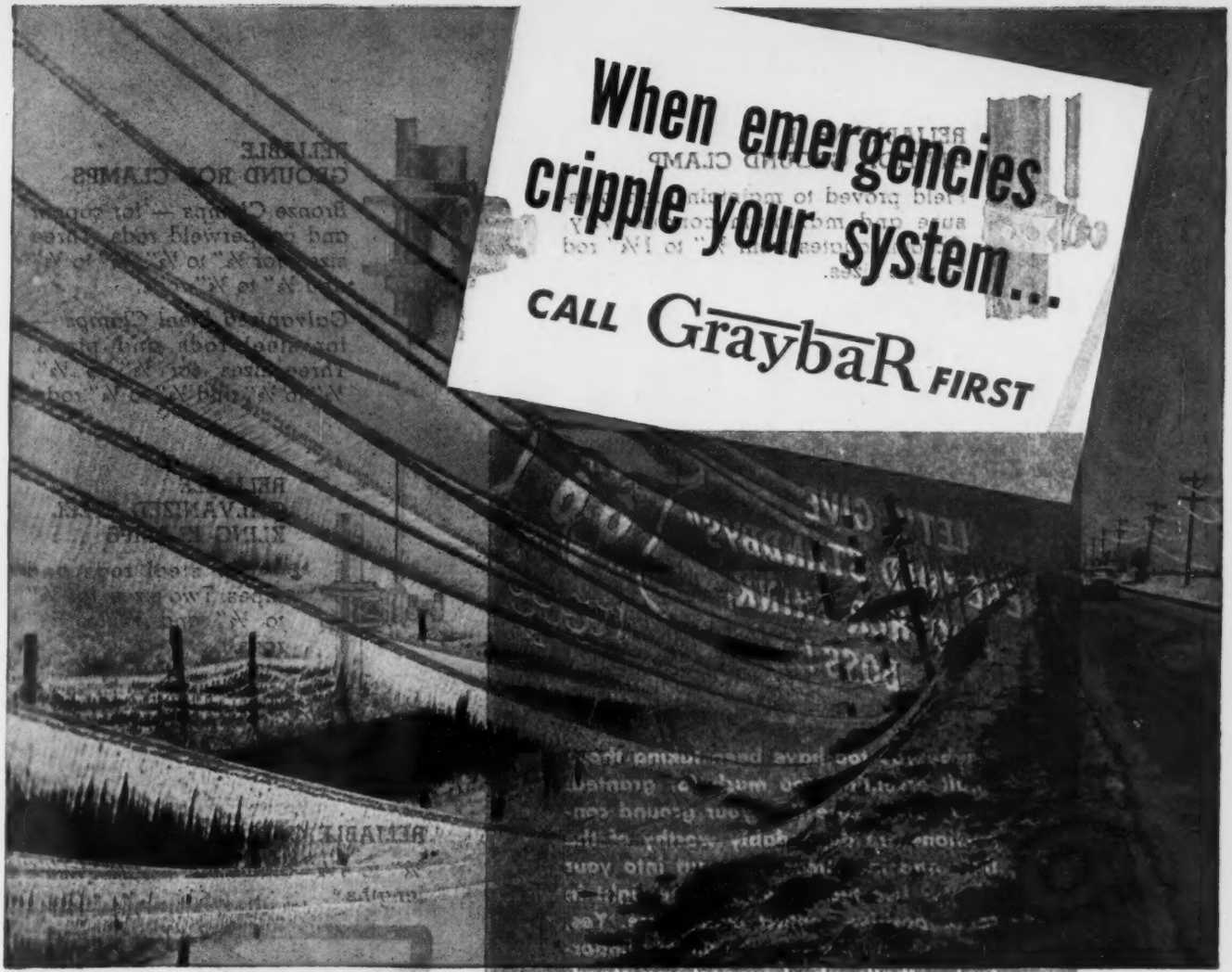
Liabilities this year increased more than twice as fast as failures. The $382 million volume, in fact, is the largest figure since 1933. But here, too, when adjustments are made for changes in the dollar value and related to the gross national product, the amount is only half the 1939-49 average.

Following the trend of the past two years, firms with larger liabilities are showing a greater share of all failures. In 1950, 22.7 per cent of all failures were in the $5,000 bracket. By last year the percentage has shriveled to 18.8 per cent and is averaging 15.9 per cent.

Most failures are still in the bracket of from $5,000 to $25,000, but even here the trend is towards fewer failures. From 51.6 per cent of the total in 1950 this category has shrunk to the point where it now accounts for less than half of the failures.

On the other hand there has been a steady, though small, percentage increase in the number of failures in the liability groups of $25,000 to $100,000 and $100,000 to $1 million. The average liability is at an all-time high of $43,533.

The Middle Atlantic States can still boast of the most failures and largest liabilities, but the biggest percentage increase in 1953 was in the East South Central and West South Central regions. In the latter, failures were up 87.4 per cent, liabilities up 120.6 per cent. Failures in the East South Central States are up 39.3 per cent, while liabilities are running 116.6 per cent ahead of last year.



Snow, sleet, wind, flood, fire — *each* is a crippler of service and may well prove to be a full-scale emergency.

That's why — when lines go down — telephone companies throughout the nation call on Graybar *first*. From experience, they've discovered Graybar's stand-out facilities for delivering emergency replacement items *fast* —wherever and whenever they're needed.

A nation-wide network of Graybar offices and warehouses provides ready accessibility to stocks of essential telephone supplies.

Through emergencies of all kinds, experienced Graybar personnel have developed the know-how needed to initiate immediate action and efficient follow-through.

Reliable Graybar suppliers are always willing to co-operate in filling extraordinary needs and to add their weight to Graybar's own services.

The next time you need emergency help, make it a point to call your near-by Graybar office. You're sure to get efficient, helpful service — the kind of service that's invaluable in emergencies . . . expected in everyday operations. 221-221

GRAYBAR ELECTRIC CO., INC.
Executive Offices:
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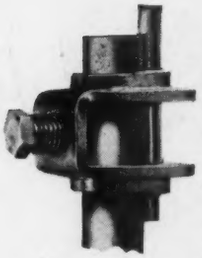
STATION GROUND CLAMP

Field proved to maintain high pressure and maximum conductivity. Accommodates from ⅜" to 1¼" rod or pipe sizes.

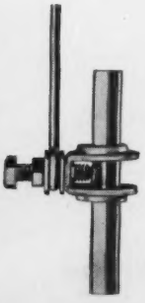


RELIABLE
GROUND ROD CLAMPS

Bronze Clamps — for copper and copperweld rods. Three sizes: for ⅜" to ½", ½" to ⅝" and ⅝" to ¾" rods.

Galvanized Steel Clamps — for steel rods and pipes. Three sizes: for ⅜" to ½", ½" to ⅝" and ⅝" to ¾" rods.

Maybe you too have been taking those *small* essentials too much for granted. Why not *be sure* that your ground connections are dependably worthy of the time and investment you put into your plants? Use test clips that bite right in for a positive contact every time. Yes, those small things can be mighty important — that's why I suggest you standardize on Reliable Specialties, they're designed and produced to the purpose.

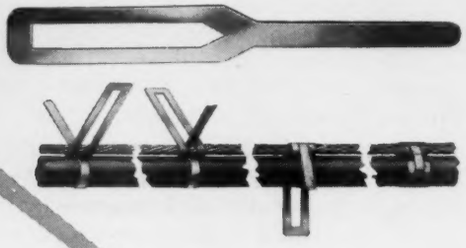


RELIABLE
GALVANIZED STEEL
KLING KLAMPS

— for steel rods and pipes. Two sizes: for ⅜" to ½" and ½" to ⅝" rods.

RELIABLE CABLE HANGERS

¾" to 4½" diameters — 7⅞" to 30" lengths.



RELIABLE TEST CLIPS

Firm spring grip
No. 1—Fitted with screw, nut, washer and spike
No. 2—Fitted with spike only
No. 3—Fitted with screw, nut and washer

No. 5—Alligator type

Let me send you samples and prices on these essential specialties — and remember the name tells you the quality — Reliable.

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Telephone Protective and Terminal Equipment for all Station, Line and Central Office Needs.

OVER 45 YEARS' SERVICE TO THE UTILITIES

The Universal Choice!

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NEW TEN POSITION AUTOMATIC ELECTRIC CO. TOLL BOARD AT CALI, COLOMBIA, SOUTH AMERICA, HANDLES HEAVY TOLL TRAFFIC WITH THE AID OF CALCULAGRAPHS

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Automatic toll time calculating and recording quickly saves many times the initial cost of the CALCULAGRAPH. Accurate printed records permit collection of all the revenue due on every toll call, eliminate switchboard detail work and clerical errors . . . speed toll service.

Calculagraphs are precision built machines. Available in several models, they can be easily installed in new equipment by your switchboard manufacturer or added to existing exchange installations.

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THE STANDARD OF ACCURACY SINCE 1892

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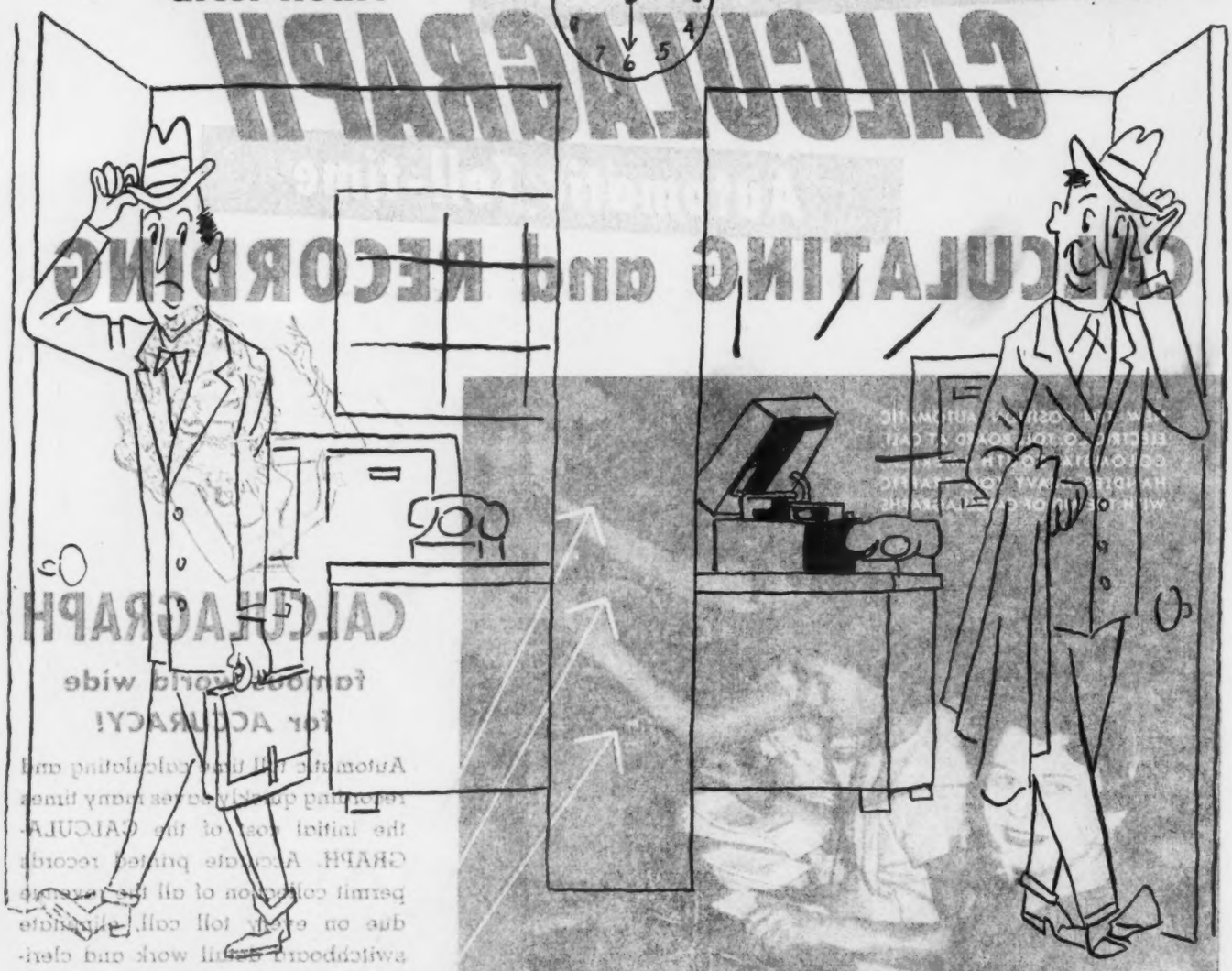
after hours

IN BUSINESS
'round the clock



If Joe Jones could see around the door into his competitor's office, he'd know why his own business was on the short side these days. Like thousands of other small businesses, these two salesmen depend on their telephone to bring in new cutomers — and when Joe Jones shuts his door, he's temporarily out of business.

Joe's competitor, on the other hand, depends on his Peatrophone to keep him in business whenever he is away from the office. Should a prospective customer call, the Peatrophone will answer by giving out a personally recorded message telling when he will return, or where he can be reached. It will then ask for, and record, any message the caller wishes to leave.

When Mr. Competitor returns to his office, he has no worries about lost business. The Peatrophone has a complete record of calls, and he can play back the messages through his telephone.

How many of your subscribers in sales and professional offices, in retail and service businesses, are like Joe Jones — out of business when they shut the door? Don't keep them in the dark! Tell them about Peatrophone — explain its low monthly rental charge. You will help improve their business and at the same time provide your own company with a steady new source of revenue.

Note: Selective harmonic ringing subsets now available — all frequencies. Write for further information.

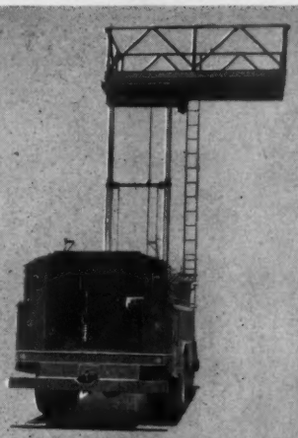
PEATROPHONE

The Mechanical Secretary

TELEPHONE ANSWERING & RECORDING CORP.

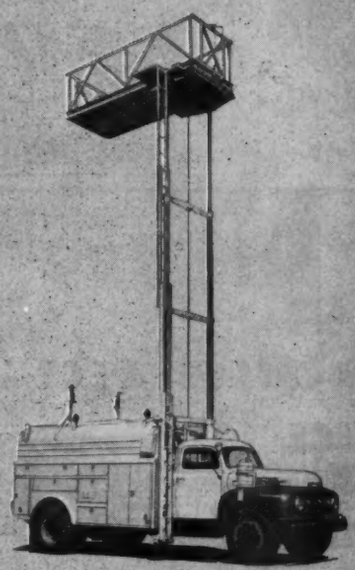
342 Madison Ave. New York 17, N. Y.

POWERS American AERIAL EQUIPMENT



AERIAL TOWERS

Series 7A-01 . . . in sizes for safe, smooth elevation to 21′ or 25′. Equipped with telescopic ladder. Operation from cab or tower. Platform revolves 360°.



HYDRAULIC AERIAL TOWERS

Series TW-2 . . . enables workmen to reach areas more than 35′ above ground. Can be operated from tower or truck cab. Platform revolves full 360°. Telescopic ladder is standard equipment.

REVOLVING Fully-Powered HYDRAULIC AERIAL LADDERS

Series HL-35 . . . elevates, extends, lowers, and retracts by *hydraulic power*. Available in sizes having ground-to-platform height up to 35′. Revolves full 360°.

REVOLVING AERIAL LADDERS

Series 5510 . . . perfectly balanced to permit fast, easy elevation. In sizes having 23′6″, 26′6″, and 30′6″ ground-to-platform height. Can be spotted at angles from 30° to 75°, and revolved full 360°.

HINGED LADDER RACK ASSEMBLIES

Standard and special racks, with extension ladders, can be furnished for installation on Powers-American bodies. These include racks with standard 24′ ladders, and racks with braced or trussed ladders to reach heights up to 30′.

A descriptive bulletin is available on each item of aerial equipment in the Powers-American line. Bulletins, plus prices and complete details, are yours for the asking.

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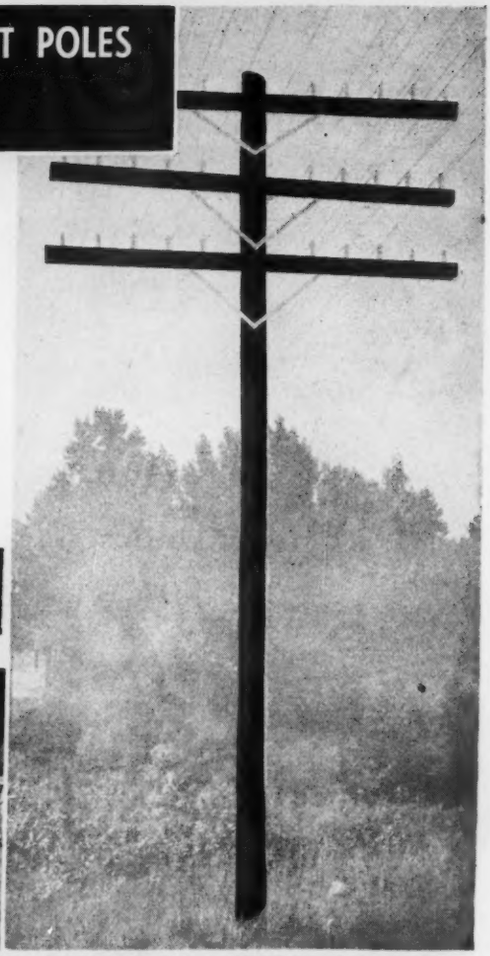
CONTINUAL RESEARCH MAKES TAYLOR-COLQUITT POLES INCREASINGLY BETTER



Below are shown two pilot treating cylinders in the Taylor-Colquitt research laboratories. One is six while the other is 26 feet long.

Manned by graduate technologists, these cylinders in conjunction with a large amount of special laboratory apparatus, are used not only to aid in the control of Taylor-Colquitt production operations but also to develop new and better wood preserving techniques.

Continual research with this equipment means increasingly better products—increasingly greater values for the ever growing list of telephone companies that specify Taylor-Colquitt poles.

Taylor-Colquitt poles are distributed to independent telephone companies exclusively by Automatic Electric Sales Corporation, 1033 West Van Buren Street, Chicago 7, Illinois.

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SPARTANBURG, SOUTH CAROLINA

PLANTS AT SPARTANBURG, SOUTH CAROLINA AND WILMINGTON, NORTH CAROLINA

MODEL 300
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IMPROPER, SUBSCRIBER-DISCONNECT HOOK-SWITCH SERVICE CALLS!

LINE AUTOMATICALLY CLEAR, WHEN SUBSCRIBER HANGS UP...

ONLY THE TELE-SYSTEMS AUTOMATIC DISCONNECT

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*HAS THIS ABSOLUTELY **NEW** FEATURE!*

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- PORTABLE
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- OFTEN PAYS FOR ITSELF WITHIN FIRST MONTH
- USES STANDARD TELEPHONE DC VOLTAGES
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Order yours now!

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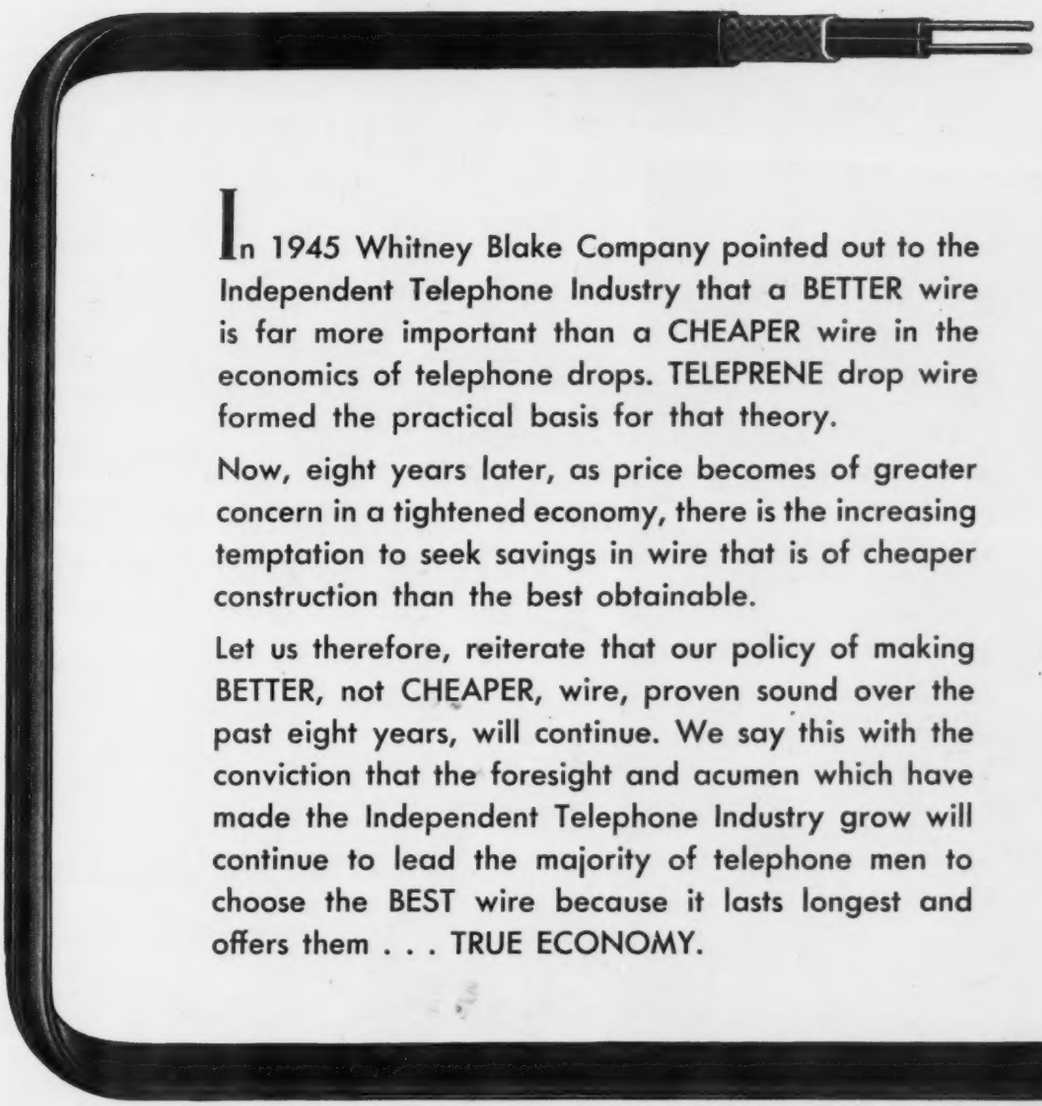
True Economy...

A RESTATEMENT



In 1945 Whitney Blake Company pointed out to the Independent Telephone Industry that a BETTER wire is far more important than a CHEAPER wire in the economics of telephone drops. TELEPRENE drop wire formed the practical basis for that theory.

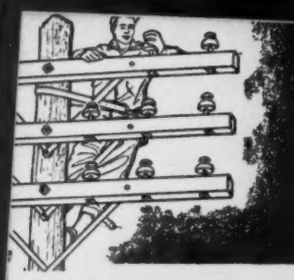
Now, eight years later, as price becomes of greater concern in a tightened economy, there is the increasing temptation to seek savings in wire that is of cheaper construction than the best obtainable.

Let us therefore, reiterate that our policy of making BETTER, not CHEAPER, wire, proven sound over the past eight years, will continue. We say this with the conviction that the foresight and acumen which have made the Independent Telephone Industry grow will continue to lead the majority of telephone men to choose the BEST wire because it lasts longest and offers them . . . TRUE ECONOMY.

WELL BUILT WIRES SINCE 1899

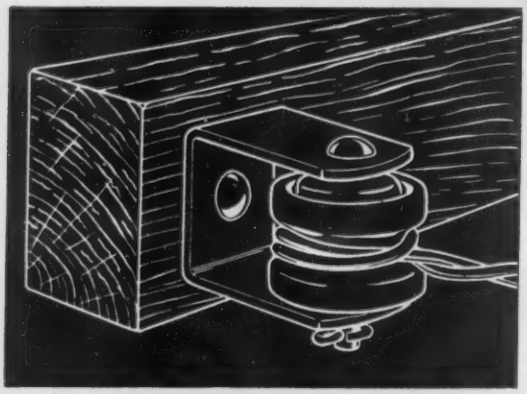
WHITNEY BLAKE COMPANY

NEW HAVEN 14, CONNECTICUT



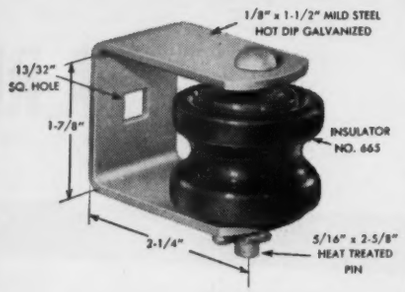
LINE CONSTRUCTION BLUEPRINTS

ITEMS SOME COMPANIES ARE USING TO MAKE LINE CONSTRUCTION WORK EASIER

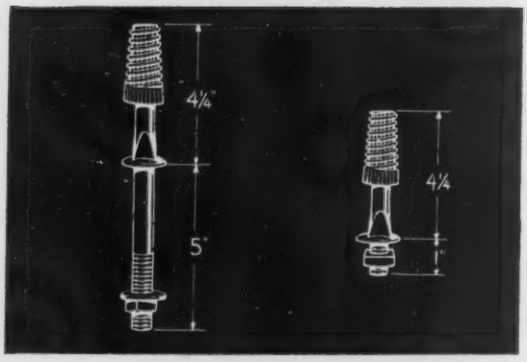


L-M DEAD END CLEVIS

Cat. No. 260084A1



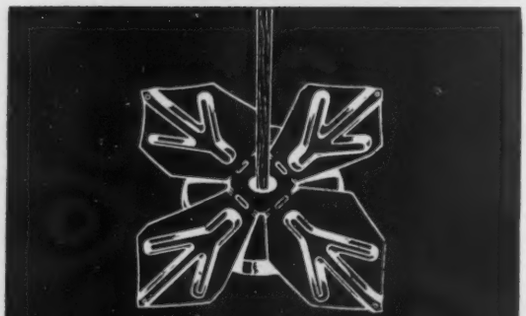
Here's a strong, compact, galvanized-steel clevis which provides a most practical method for dead-ending. May be attached to either pole or crossarm, with a ⅜"-diameter carriage bolt. Square hole keeps clevis from turning. Clevis has ultimate strength of 2500 pounds. Spool insulator (must be ordered separately) will take up to 1500 pounds wire tension.



L-M STEEL INSULATOR PINS
WITH WOOD COBS

For wood crossarms: Cat. No. 9740, ½" diam.
Cat. No. 9741, ⅝" diam.
For steel crossarms: Cat. No. 9740S, ½" diam.
Cat. No. 9741S, ⅝" diam.

Strong steel pins, hot-dip galvanized, with seasoned oak cobs thoroughly impregnated with paraffin and threaded for 1" insulator holes. Pin for wood arm has square nut and clipped washer; pin for steel arm supplied with square nut only.



Notice the additional area inside the center of gravity of two opposed blades which gives utmost area for increased holding power, without sacrificing balance of the anchor.

Heavy steel, with skirted edge to prevent deformation. A nut retainer strap welded to the underside reinforces the hole so that the nut cannot pull through the base plate.

L-M 4-WAY PRESSED STEEL EXPANDING ANCHORS
DESIGNED FOR EXCEPTIONAL STRENGTH

Catalog Number	Diameter—Closed—Inches	Expanded Area—Square Inches	Nominal Holding Power Class—Pounds	Anchor Rod Diameter—Inches	Minimum Mechanical Strengths Without Noticeable Deformation—Pounds
200026B1	8	110	6,000	⅝, ¾	16,000
200026B2	8	125	8,000	⅝, ¾	21,000
200026B3	8	132	10,000	1	24,000
200026B4	8	132	10,000	⅝, ¾	24,000

All 3 sizes are REA-approved, and have been thoroughly tested and approved by major utility companies. You can depend on them to hold!

Two-piece design . . . The four blades are formed of a single piece of steel, and are held to the base plate by four small bolts, which simply shear off by tamping. The center hole is extruded downwards. This extrusion provides a bearing surface against the rod to prevent binding; it reinforces the tamping area; and it provides an audible signal when the extrusion strikes the base, indicating full expansion.

153

Do You Have a Line Construction Problem?

These are just a few of thousands of L-M line construction specialties. If you have a line construction problem, let us know. We may have standard or special items in stock that will solve it. Ask the North Electric or Kellogg representative, or the L-M Field Engineer. Or write Line Material Company, Milwaukee 1, Wisconsin (a McGraw Electric Company Division).

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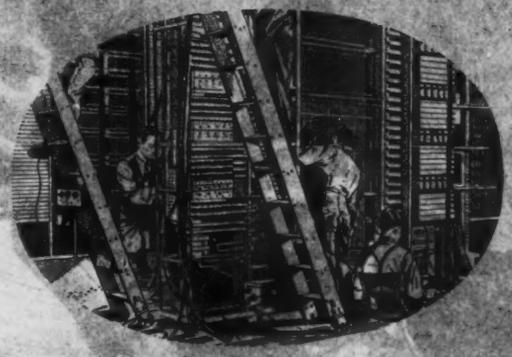
THE Telephone Engineer **EDITORIAL**

"Acres of Diamonds"



MANY old-timers who read this will remember the lecturer who toured the country year after year, for a number of years, presenting just one lecture which he called "Acres of Diamonds."

The story of the lecture, as we remember it, was that of a fellow who travelled the world over looking for something of value — and then he came home and found it in his own back yard.

We think that a lot of Independent telephone companies can find something of value in, so to speak, their own back yard — or at least their operating territory. Not a diamond mine, of course, but some additional revenue.

Many new ideas and new things have been developed in recent years which are helpful, if put to use, by the way of producing additional revenue. Even if this auxiliary revenue does no more than make unnecessary another increase in exchange rates, it will have served a very useful purpose.

A graphic illustration of what can be done in this field is the installation by a number of companies of outdoor and roadside booths and pay stations.

Not only are these stations a great convenience to the public, night and day, but telephone managements have often been agreeably surprised at the amount of revenue, both toll and local, they produce — and without apparent dimunition of such revenue from other sources.

We know of several Independent companies that carry on, at least twice yearly, drives to sell more extension telephones. They report that the additional revenue obtained from extensions is surprisingly large.

One company made a special effort to sell extensions for installation in the kitchen. They established, we understand, a special "kitchen extension rate" and installed wall sets, enamelled white. The results have been highly satisfactory.

Some companies have done very well in pushing the installation, at slightly higher than the standard rate, of colored telephones.

There are a number of new devices now available to telephone companies, and from Independent manufacturers, which provide new kinds of service.

These comprise such things as recording devices, telephone answering devices, and so on. Equipment is available for time service, with paid announcements to produce the revenue, and for transferring incoming calls from one telephone to another.

It has long been the policy of telephone companies, and necessarily so, that "foreign" attachments must not be made to telephones without the consent of the telephone company. The best way to deal with this situation is, in most cases, for the telephone company itself to supply the attachment and service it. Recording and answering devices come within this class, and are now generally recognized as attachments which the telephone company can supply on a fair rate basis.

Utility commissions are usually very receptive to the idea of the telephone company obtaining additional revenue from auxiliary services, and will approve charges for such services that are profitable to the company.

For many years it was said of the telephone business that it had only two things to sell — local and long distance service. But, as a study of the offerings of Independent manufacturers shows, the telephone company can now supply a number of things besides "local and long distance." There are undoubtedly a large number of telephone users who would like to have those things.

You probably don't have an acre of diamonds. But you probably do have several ways of increasing revenue.

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GHI 4
DEF 3
JKL 5
ABC 2
MNO 6
PRS 7
TUV 8
WXY 9
OPERATOR 0

"A service is truly successful when its performance is taken for granted"

Press a switch and there's light... turn a tap and there's water... lift a telephone and span the continent with the human voice. These are the things that are taken for granted, for their dependable "always thereness."

In a sense, in *your* business, when the wires are down, coated with ice or snarled with the wind, the trouble calls that swamp your exchange are a tribute to the everyday efficiency with which you run your company.

Here at Stromberg-Carlson we have for over fifty years been conscious of this "take it for granted" feeling of the public. As a result, all our engineering experience, all our production knowledge is concentrated on designing and building ever better equipment, the performance of which you and your subscribers can always take for granted.

This is no mere year's end review... no listing of a year's accomplishments. It's a statement of the objectives that have guided us in years past... and a pledge of adherence to those same guiding principles through years to come.

Stromberg-Carlson®

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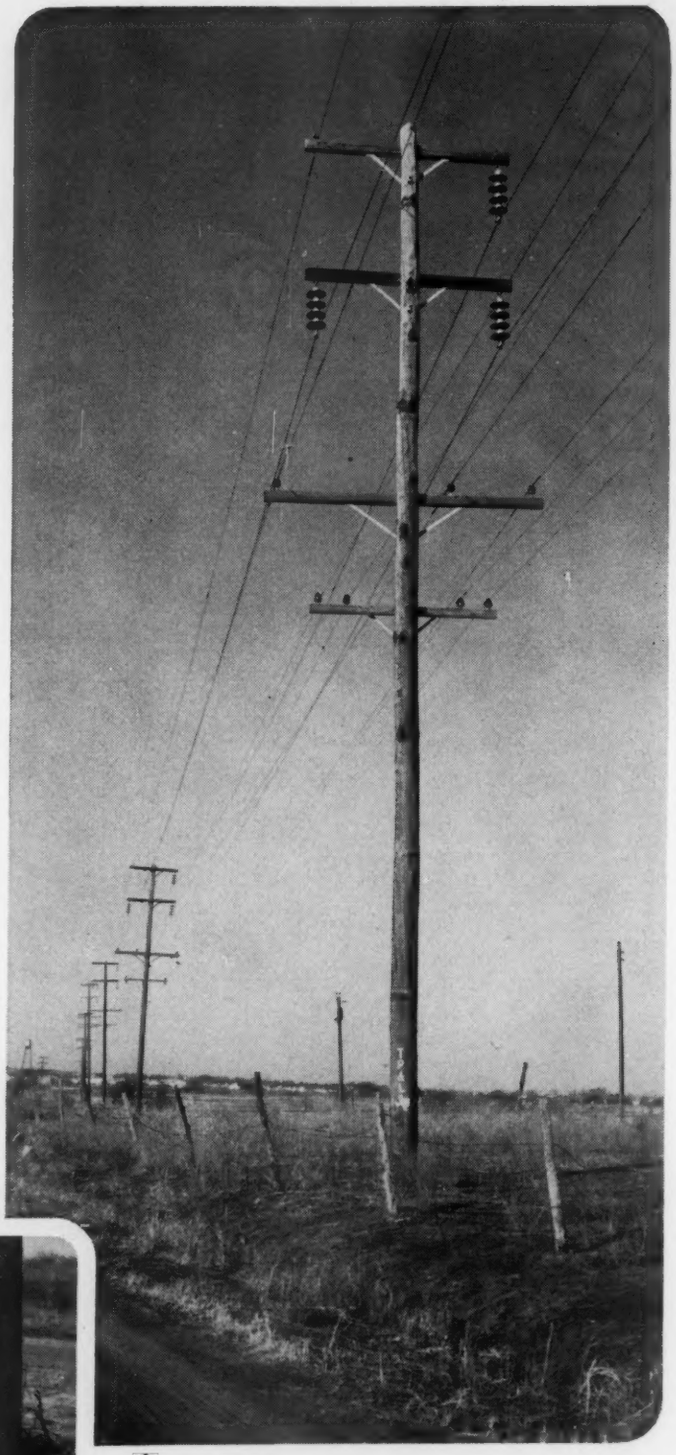
Here's Proof of Performance...

3 out of 4 pressure-creosoted poles in this line are still standing *after 38 years*



● More than 40 years ago, Texas Power & Light Company turned to the use of pressure-creosoted poles to counteract the effect of weather and decay. It was a wise choice and officials of the utility say today: "We have saved many thousands of dollars over the years through our use of creosoted poles."

A good example of the service life of pressure-creosoted poles is the Company's line between the Jenkins substation in Dallas County, and Royse City. Here 475 creosoted Southern Yellow Pine poles were installed in 1916. Today, three of every four of these original poles are still standing in spite of the temperature extremes and biting winds encountered in this area.

When you compare this kind of a service record with the 10 to 20 years of life Texas Power & Light was getting from untreated poles, you have real proof of the effectiveness of Creosote's protection.

Be sure your poles are pressure-treated for extra life with U·S·S Creosote. This wood preservative is the product of continuous processing in the plants of United States Steel. As such, it is a uniform product, made to give you uniformly good results. For complete information, contact our nearest Coal Chemical sales office or write directly to United States Steel Corporation, 525 William Penn Place, Pittsburgh 30, Pa.

Close-up of one of the 38-year-old poles at the ground line, showing the excellent condition of the treated wood.

▲ Pressure-creosoted poles in the Jenkins-Royse City line of Texas Power & Light Company. 475 poles were installed in 1916—75% of the original poles are still in service.

U·S·S CREOSOTE

4-251

UNITED STATES STEEL

By ROLAND DAVIES & FRED HENCK

Completely overhauled set of rules proposed for domestic public radio . . . New congress expected to confirm Lee appointment to FCC . . . W. E. Pothen named assistant administrator of BDSA.

A completely overhauled set of domestic public radio rules — involving the long-awaited dropping of the "experimental" tag from such vital common carrier communications functions as microwave radio relay, rural subscriber, short haul toll, domestic control and repeater stations, and television pickup and studio-transmitter links, as well as several modifications affecting the domestic land mobile radio service— has been released by the Federal Communications Commission.

The proposed rules culminate a rule-drafting project which had been under way since early in 1950.

The action would establish regular service rules for all domestic common carrier radio operations— other than maritime, aeronautical, and Alaskan point-to-point — in a new rule section, part 21. Comments by interested parties are due by Feb. 26.

Under the proposal, common carrier communications facilities now in use in the United States, representing an investment well in excess of $200,000,000, including the Bell System's nationwide microwave radio relay network, would be removed from the experimental status. The proposal is designed to cut down on the great amount of extra paperwork and time required of both the Commission and industry in following the licensing procedures for experimental stations.

Frequency allocations are unchanged by the proposal, and while the new rule part spells out for the first time complete engineering standards for the domestic public land mobile service and microwave engineering standards, it involves little departure from presently-used engineering criteria.

Under the proposal, however, standards are prescribed for permissible beam widths of microwave and other point-to-point antennas, while in the VHF and UHF fields, the standards go farther in setting forth antenna polarization standards.

As contrasted with the present one-year experimental license terms, authorizations under the proposal for intercity radio and local television program transmission services would be issued for five-year periods, while rural radiotelephone service licenses would be issued for three-year terms. Domestic public land mobile radiotelephone authorizations would remain at three-year license terms, and developmental licenses would be one-year periods.

Expect Confirmation Hearings On Lee Appointment to FCC

CONFIRMATION hearings on the appointment of Robert E. Lee to the Federal Communications Commission were expected to be held by the Senate Interstate & Foreign Commerce Committee soon after the new Congress convened in Washington.

Mr. Lee's nomination attracted considerable atention at the time it was submitted, due to his close association with the controversial Senator Joseph McCarthy (R., Wisc.). At that time, there were political comments indicating that the Democrats might make an issue of the selection when it came up for Senate approval.

However, Commissioner Lee has impressed all concerned with his approach to FCC problems during his several months as a recess appointee, and his confirmation is likely.

As Director of Surveys & Investigations for the House Appropriations Committee for a number of years, and as a member of the Federal Bureau of Investigation staff, Mr. Lee developed experience which is felt by observers to be of great prospective importance in his FCC service. Although he has had no prior background in communications, this may well be considered more of an asset than a liability, since he brings a fresh viewpoint to the FCC. In addition, he is the only member of the Commission with a full-time professional accounting background, although Commissioner John C. Doerfer is an experienced accountant who later entered law practice.

The new Congress opened without any clearcut indication of the outlook in several fields of major importance to the communications industry.

Exhaustive tomes have been written about the tax picture without clarifying it very much, and it suffices to say that experienced Washington observers, viewing the prospects for communications excise reduction or repeal and weighing all the factors, believe that any such action will come only after a long, hard, uphill fight, and that the combined persuasive power of the whole industry must be brought to bear.

Equally cloudy are prospects for a freeze of Social Security taxes at 1½% on employer and employee, the rate which went out the window Jan. 1 when the 2% rate on each became effective automatically. Tied into the question is the whole matter of Social Security reserves, coverage and benefits, and there is likely to be no quick or easy answer.

Unquestionably, the Congress which has just opened will set the pattern in a number of significant areas for years to come. It looks like a tough spring this year in Washington.

W. E. Pothen Named to New BSDA Post

W. ELMER POTHEN, who has been serving as director of the Communications Division of the Business & Defense Services Administration, while on loan to the government from the Northwestern Bell Telephone Co., has become assistant administrator of BDSA.

Coming Conventions

Minnesota Telephone Association, Radisson Hotel, Minneapolis, Feb. 1, 2, 3.

Kentucky Independent Telephone Association, Phoenix Hotel, Lexington, March 2.

Texas Telephone Association, Texas Hotel, Fort Worth, March 15, 16, 17.

Nebraska Telephone Association, Paxton Hotel, Omaha, March 23, 24.

Ohio Independent Telephone Association, Deshler Hilton, Columbus, March 29, 30, 31.

Iowa Independent Telephone Association, Fort Des Moines Hotel, Des Moines, April 6, 7.

Illinois Telephone Association, Pere Marquette Hotel, Peoria, April 26, 27.

Wisconsin State Telephone Association, Loraine Hotel, Madison, May 5, 6.

National Executive's Conference, Broadmoor Hotel, Colorado Springs, Colo., May 10, 11.

Kansas-Missouri Telephone Associations, Muehlebach Hotel, Kansas City, Mo., May 17, 18, 19.

Pennsylvania Independent Telephone Association, Bedford Springs Hotel, Bedford, May 25, 26.

New York State Telephone Association, Scaroon Manor, Scaroon Lake June 7, 8, 9.

California Independent Telephone Association, Fairmont Hotel, San Francisco, June 10, 11.

Indiana Telephone Association, Claypool Hotel, Indianapolis, June 17, 18.

Washington-Oregon Telephone Associations, Multnomah Hotel, Portland, June 18, 19.

Alabama-Mississippi Telephone Association, Thomas Jefferson Hotel, Birmingham, Ala., Nov. 8, 9.

Mr. Pothen, as one of the three assistant administrators of the agency, will participate in formulating plans and policies to guide the industry divisions of BDSA in carrying out assigned functions regarding defense production, mobilization preparedness, and business services.

The industry divisions for which Mr. Pothen's office will have responsibility are: Communications; Electronics; Agricultural, Construction & Mining Equipment; Automotive; Business Machines & Office Equipment; Electrical Equipment; General Components; General Industrial Equipment; Metalworking Equipment; Power Equipment; and Shipbuilding, Railroad, Ordnance & Aircraft.

Mr. Pothen, on leave as assistant general Manager in South Dakota for Northwestern Bell, will continue to serve the government in his present status as an industry representative on loan. He is expected, during the early part of this year, to continue supervising the operations of the Communications Division until a new Director from industry is secured by BDSA.

The new Assistant Administrator began his government service in late August as a consultant to the former Communications Equipment Division of the National Production Authority, BDSA's predecessor. He aided in the transition from NPA to BDSA, and as the first Director of the division under the new agency has been instrumental in developing the office in its broadened responsibilities as a key agency of the Commerce Department.

Mr. Pothen will now remain with the government agency beyond the usual six-month period, and is expected to serve until about June 1.

Military Planning

SWEEPING authority over the communications phases of the nation's military programming has been vested in the recently-created Office of Transportation & Communications in the Office of the Secretary of Defense, it has been shown in a Defense Department manual of organization.

For the first time in history, organizational responsibilities for communications have been placed in a single office at the top level of the Defense Department. The manual outlining the office is one of 11 to be issued by Defense Secretary Charles E. Wilson, and covers the office of the Assistant Secretary of Defense for supply and logistics, of which the Office of Transportation & Communications is a part.

The Communications Division of the OTC will be headed by a Staff Director, expected to be named in the near future, and will have a staff of about 10 people, including a Navy captain, Army colonel, and Air Force colonel.

While the separate branches of the armed forces will continue to operate their communications services individually, each will have to come to OTC for approval of proposed projects. The Communications Division will consider such projects in the light of budgetary justification, seek to eliminate duplications, and aim to integrate services wherever possible.

In carrying out these responsibilities, the Staff Director for Communications will serve as the civilian agent for the Secretary of Defense in policing the overall military communications program.

Providing Employes With Information They Want

By JOHN W. COGSWELL*

"Point of View" is the vital element in an information program which will give telephone people the facts they are entitled to know about all aspects of the telephone business

THE OPERATOR looked her chief right in the eye and calmly asked, "So what?"

There was a pause, while the chief operator got adjusted to this abrupt hitch in her presentation of the Annual Report. Then she replied, "Why, it's important. It's the report card of our business. Our jobs, our benefits, our futures are wrapped up in it."

"But what can I do about it? What if I didn't like something? Would it make any difference?"

The chief operator tapped her pencil, troubled. There was an answer, but she couldn't put it into words quickly for this outspoken youngster. Chances are she sighed, and tried to get back on the subject. But it was hard going, because her line of communication had been snapped.

We do not mean to present the chief operator in a poor light, for, in all truth, she could have been any one of us, in any department. But the questions the operator raised are basic. What kinds of information *do* employes want? Who does care? Why? How important is it? Does it make any difference?

Any employe, no matter how long he is around, absorbs a good deal of general information about the business over and above the specific details of his job. This experience factor builds up for the individual a personal pattern of knowledge and understanding. It emphasizes the fact that no single project can adequately do the employe information job.

It is natural to be concerned about the feelings employes have about the telephone business and the way they pass them on to others. You want those feelings to be loyal and favorable, but such a reflection doesn't come automatically. *You have to earn it*, by the things you do and the things you say.

The main interest here is in the things that are said, the planned in-

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Mr. Cogswell is employe information manager of the American Telephone & Telegraph Co.

formation that people receive. Is it effective? Are they getting as much as they want? Is the best possible job being done?

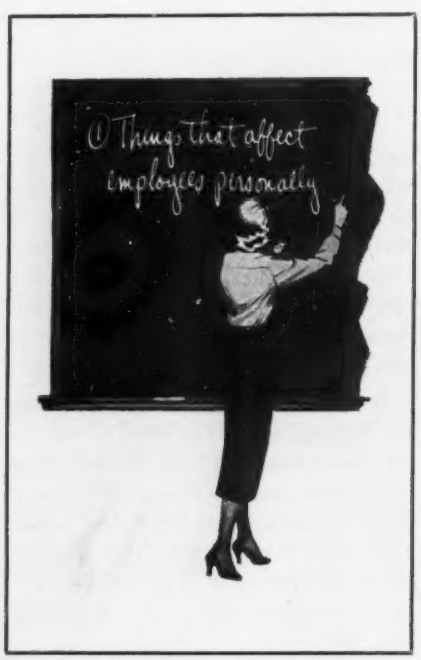
Our expressed intention is to let employes know what's going on in the business; what the problems, plans, and accomplishments are. To do this, certain information is added to the informal experience stream we have described. In the case of the young operator, this effort entailed careful preparation and appropriate visual aids. It was in line with a perfectly sincere management conviction that a clear understanding is to the employe's interest as well as the company's.

But the employe said, in effect, "That's got nothing to do with me."

You might retort, "She's young. She's fresh. We can forget her. She's got a steady boy friend and won't be with us long."

You would be sadly wrong. This girl will be with us as long as she lives. She will be a moving, talking unit of our society, with full right and plenty of will to express herself. She will be an authority on telephone matters because she worked for the telephone company. And her opinion will carry weight with her family, other customers, friends and neighbors. If you dismiss this girl as an isolated case, without investigating further, you are plunging your head deep in the sand.

Let's go back to that little meeting. The chief operator talked. She said, in effect, "Here is something significant to you. Please listen."



Employees need help to answer fully the questions they are asked by the public.

Employees are asked most frequently about service, changes and employment.

Obediently, the girl listened. In the majority of cases, that would have been that. But not this youngster. She never heard of "two-way communication," but she felt entitled to her say. So she talked back.

"There are two sides to this," she implied.

Values of Two-Way Communication

THE RESULT left the chief puzzled and disturbed and a little hurt. No one likes his good intentions to get trampled flat. But her state of mind can improve if she realizes the girl did her a favor.

For what she said amounted to, "You assume I'm interested in big figures and percents because you are. You act disappointed and indignant when I'm not. You'd have saved a lot of work if you'd taken the trouble to ask me first."

Hmm. Was she asked? Did anyone take the trouble to find out what she and all her co-workers in Accounting and Commercial and Plant wanted from their side. In all honesty, probably not. There was a great deal of talking being done but not very much listening.

Yet, all of us are vitally interested in having the work experience of employes form for them a favorable opinion about the company. It is not reasonable to expect this job satisfaction unless their ideas are taken into account, too.

Let's heed the operator's suggestion and take a good look at the other side. Let's say to her and all her fellow-workers, "Please tell us what you would like to know about the telephone business."

Actually, this has already been done in a few Bell System companies. While more information is needed, what has been learned all points in one direction. Overwhelmingly, employes first want to know about the close, personal things which touch *them*. They are, in fact, no different from any other human beings on earth.

A realistic analysis of Employe Information must recognize this basic truth: never lose sight of employe self-interest in any informative effort we make. Let's go over to the nearest blackboard right now, print a large number "1" on it, and write: "Things that affect employes personally."

The customer opinion studies that have been conducted for a number of years show that this business enjoys a great deal of public trust and confidence. We are coming more and more to realize how much of this is due to the part employes plan as living testimonials to our good service, good citizenship, and good employment.

But how much is really known about their part? What questions

do friends, acquaintances and customers ask employes? Do they have the answers? Do they need or want any help in this direction? What are their understandings and misunderstandings? Do they have doubts?

Some attempts have been made to get the answers to those questions by interviewing employes. While more studies are needed in this significant area, the few that have been made agree in their conclusions. Employes do talk often to others about the telephone business. They are asked most frequently about service, charges, and employment. And the majority of those interviewed said *yes*, they needed help to answer fully the questions they got.

It's time to go to the blackboard again. After the figure "2" let's add:

"Subjects friends or customers are interested in hearing about."

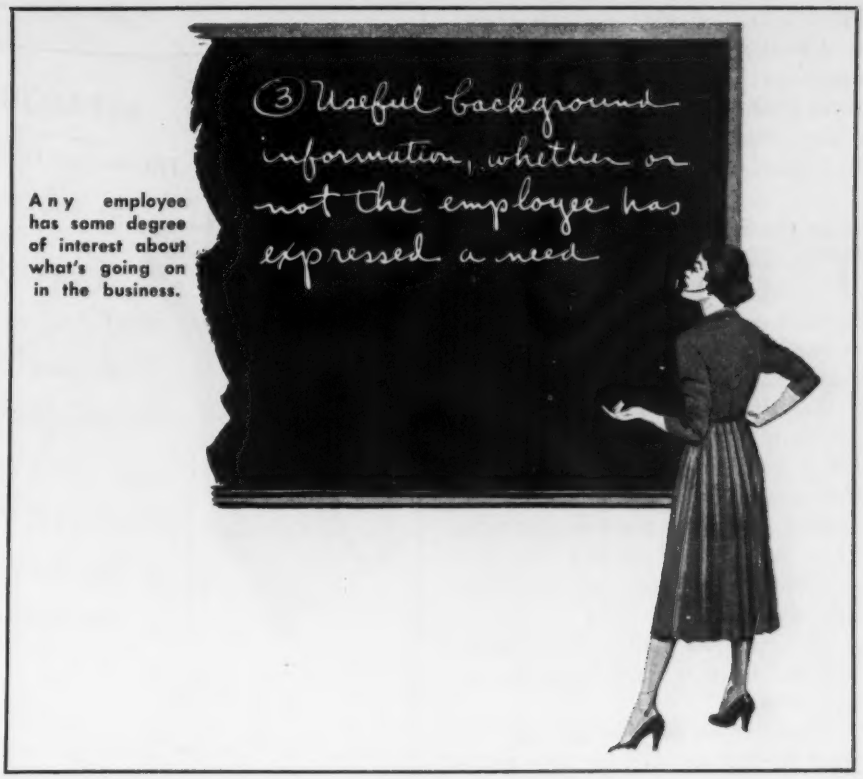
Employe Information has been looked at now from the employe's view and the customer's view. Is there anything else?

What about the company side? To pay attention only to what employes say they want would be just as one-sided as the example we started out with. The employe has no way of knowing about many kinds of information — new developments, particular progress and results, future plans and so on. How can he or she express a desire for them?

Obviously, however, any employe has some degree of interest about what's going on in the business, if only because his or her welfare is for the time being tied up with the company's. Few human urges are stronger than the yen to "be in the know," and even if he or she hasn't expressed a need, management has an obligation to see that the story is offered.

So the list cannot be complete without a third point on the blackboard:

"Useful background information, whether or not the employe has expressed a need."



Any employee has some degree of interest about what's going on in the business.

Information Must Be Available

UNDERLYING the three points already listed on the blackboard is another important factor. Whether or not information is given out, or the employe asks for it, it must be perfectly clear that it is always available. Employes have no incentive to be good public representatives unless their experiences within the business make them *want to*. And if the employe knows that when he wants an answer he can have it — and his experience consistently backs this up — then you have gone a long way toward your objective of earning his respect and loyalty.

Let's print "Availability" across the bottom of the blackboard and emphasize it.

Now, we believe, you have an outline for the fundamentals of employe information. The best judgment of people within and without the business, as well as every scrap of valid study data available, supports this conclusion. It can be expressed in one sentence this way:

Employe Information is that part of the continuous development of an employe that satisfies his wants and needs for a greater understanding of what goes on in the business.

If all three elements — the employe's desires, the public's desires, and the company's desires — had been present in *proper proportion*, the young operator would not have thrown a monkey wrench into her chief's presentation.

With this understanding, what is the most practical way to put this basic approach to work? Is it really as simple and clear as it seems? How far is it between those words written on the blackboard and the young operator in the workaday atmosphere in her office?

If you, as a supervisor, agree that the evidence is plain and the conclusion reasonable, could you start to-

① Things that affect employees personally
② Subjects friends or customers are interested in hearing about
③ Useful background information, whether or not the employee has expressed a need
AVAILABILITY

morrow helping other supervisors put it to work? Could you deal with the questions you would inevitably get from them? Could you make such a viewpoint stand up in the day-to-day life of our business?

How Do You Go About It?

THE FIRST question they would be likely to ask you might well be the $64 one: "The approach sounds reasonable, but how do you go about doing it?"

Well, it's obvious that no concept can earn a place in our business unless it will fit the pattern of our normal operations. So you'd be on safe ground to answer the question with, "Just like any new practice."

"That means along existing channels, then?"

"Right," you reply, "Like induction and training, and day-to-day supervision."

"Now let me get this straight. You want the information in these activities to reflect what employes are interested in as well as what management wants them to have?"

"Yes." You realize that leaves out a thing or two, but it's the main idea.

"That means we have to be sure about what employes really want?"

You nod.

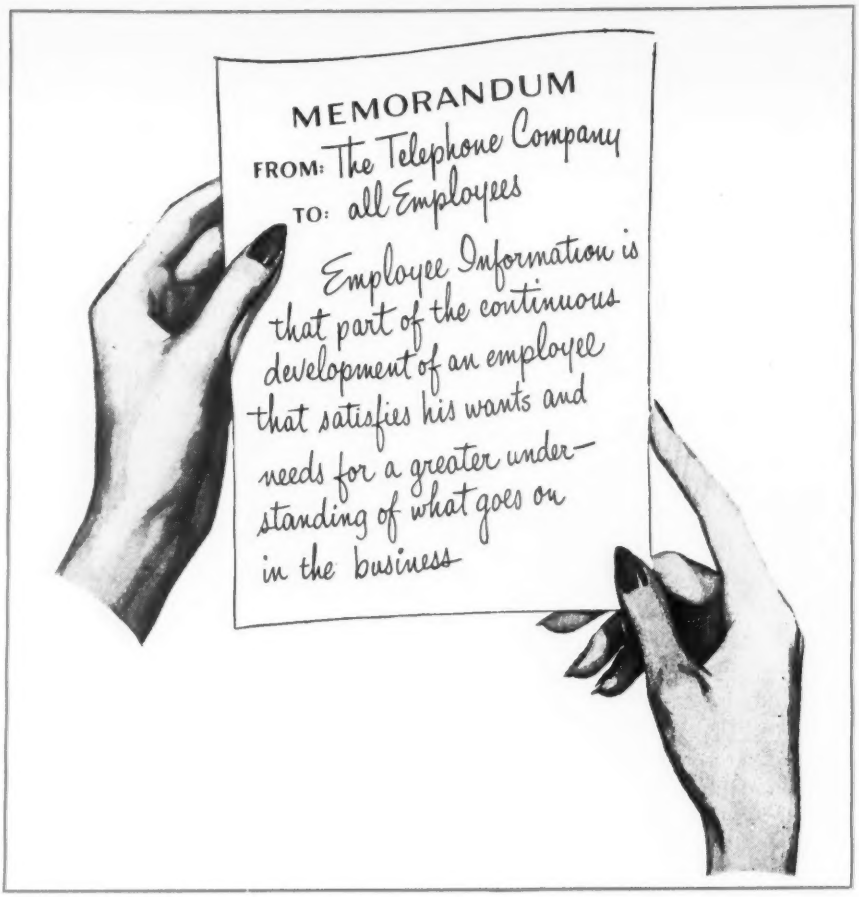
"But don't we know that already? Aren't we passing out information all the time?"

"Sure. You may be doing exactly what we're talking about. But," you point out, "there are many indications that not everyone is doing it." And if you have sat in on a non-management meeting and heard people discuss freely what they want to know, you would be able to back this up with plenty of specifics.

"Hmm," muses your friend. "Well, all right. I guess I can see what you're driving at — fit it into our normal operations. Will that do it."

When you realize how powerful informal channels of communication are, your own experience will lead you to reply, "Just fitting it into normal operations isn't enough. Supervisors in their day-to-day contacts do a lot of talking about the business. If they don't have the employe information point of view, the material they pass along isn't likely to take. We've all had to become safety supervisors, haven't we? Why not information supervisors?"

"Now, wait a minute," says your friend, "We're up to our ears now."


MEMORANDUM
FROM: The Telephone Company
TO: all Employees
Employee Information is that part of the continuous development of an employee that satisfies his wants and needs for a greater understanding of what goes on in the business

"You took on safety, didn't you?" you ask.

"That's different. That's tangible. You're talking now about something much harder to pin down. A long-range thing."

At this point, you get a bright idea. "How long," you ask, "has safety been going on?"

"I don't remember exactly."

"The idea was started about 1916. It shaped up in the nineteen-twenties. Our safety creed was coined in 1937. Wouldn't you call that long range? It's over thirty years."

"Well, yes. But somehow I can't get this information function down to earth, the way I can safety. Can you give me an example?"

"I just did," you say calmly.

"You . . . what?"

"I gave you some history on the safety program, so easily and naturally you didn't even realize you were getting information. I didn't make a big deal out of it. I just took advantage of an opportunity. Timed it, too. Six seconds."

It's a Point of View

THERE MAY well be a thoughtful pause. Then your point is apt to be played back to you in some such way as this: "You mean never losing a chance to pass out some background or explanation, as long as it fits at the time. You're really talking about a *point of view*."

"I guess I am."

"But I think I have that point of view now."

"I hope you do. If so, your results should reflect it, and others ought to know about it."

Even so, if this supervisor, or another like him, were to sit in and listen to employe comments freely expressed, chances are his views would alter.

He'd hear that many employes tend to retain information better if it is given to them orally. That people lose confidence in supervisors who don't seem to have the answers. That they don't understand some things we take for granted. That employes prefer simple, clear, one-at-a-time explanations. That employes are eager to make suggestions that may help with company problems. And finally, he'd feel the real enthusiasm that such meetings generate among both employes and supervisors.

When you say that oral information is much better, more effective,

Please Turn To Page 90

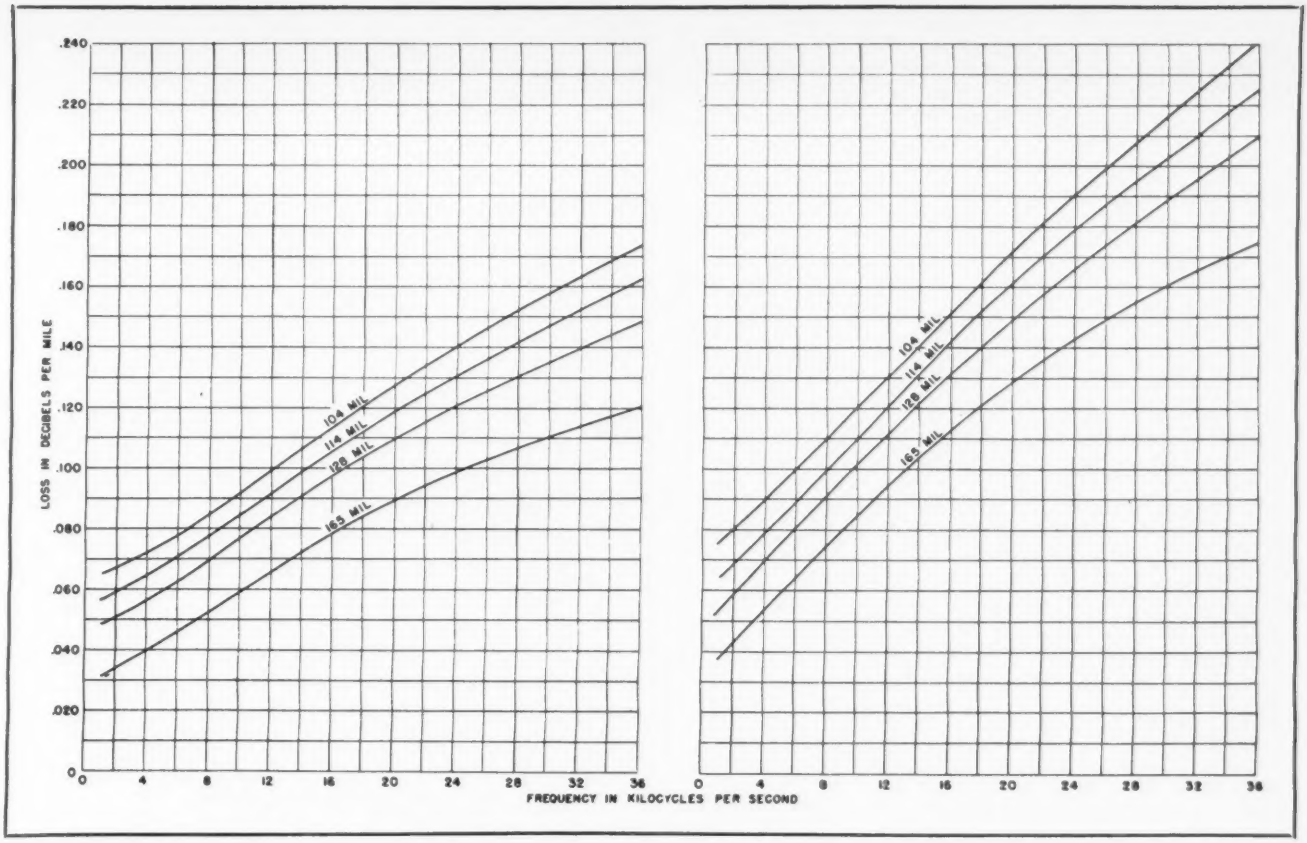


FIGURE ONE (left) — Dry weather attenuation of open wire side circuits with hard drawn copper conductors spaced 11½ inches. Closer spacing of conductors would result in greater attenuation at all frequencies.

FIGURE TWO (right) — Wet weather attenuation of open wire side circuits with hard drawn copper conductors spaced 11½ inches. Wet weather increases the attenuation at high frequencies more than it does at low frequencies.

Line Requirements For Carrier

By R. E. GRAHAM

Manager, Wire and Cable Carrier Sales, Lenkurt Electric Co., San Carlos, Calif.

Part II of T E & M's series on carrier equipment and systems discusses — (1) Attenuation, (2) Impedance Irregularities, (3) Noise and Crosstalk, and (4) Carrier Transposing of Telephone Circuits. Part I of this series appeared in the December, 1953 issue of T E & M. Part III is scheduled for the February issue.

MODERN CARRIER systems now are in use to provide as many as 16 toll quality telephone circuits on a single pair of open wires. Toll quality performance, however, is dependent upon the use of carefully designed carrier equipment operating over lines that have been properly engineered, constructed and maintained.

Design of carrier systems takes into consideration much of the variation that can occur in transmission line characteristics. Special units in carrier terminal and repeater equipment, such as variable gain amplifiers, regulators, and equalizers are included to compensate for undesirable line characteristics and variations in line characteristics.

While good carrier design can compensate for some of the electrical and mechanical defects of open wire lines, these defects are generally less tolerable for carrier than for voice frequency circuits.

Generally, carrier systems may be divided into two types. The first type, often referred to as low frequency carrier includes equipment which provides up to four carrier channels in addition to a voice frequency circuit. The upper frequency limit of these systems is usually about 35 kc. A second type, referred to as high frequency carrier, in-

cludes systems which provide up to 12 carrier channels in a frequency range of about 40 to 150 kc. Another type of open wire system provides 16 carrier channels in groups of four channels each and utilizes frequencies from about 2 to 156 kc. Regardless of the type of carrier system considered, the problems involved in providing adequate transmission facilities are of the same general nature differing only in the degree that they affect different systems.

The important factors which affect the suitability of a circuit for carrier operation are as follows: (1) Attenuation of the circuit (per repeater section); (2) impedance irregularities such as intermediate cables or equipment; (3) noise due to various sources, and (4) crosstalk from other circuits due to improper transpositions or lack of transposition.

Attenuation

ATTENUATION is that characteristic of a telephone circuit which causes the speech signals used in transmission to gradually diminish in strength as they progress from the input end of the circuit towards the output end. Technically, the definition of attenuation is based on the ratio between the input and the output power. If equal sections of a circuit are considered, an equal proportion but not an equal amount of power is lost in passing through each successive section.

Attenuation is expressed in "decibels" (usually abbreviated to "db") and is expressed mathematically as follows:

$$\text{Attenuation in db} = 10 \log \frac{\text{Input-Power}}{\text{Output-Power}}$$

The attenuation of a telephone circuit depends on several factors. The most important of these are:

(1) Length of circuit
(2) Material of conductors
(3) Size of the conductors
(4) Spacing of the conductors
(5) Type of insulation
(6) Weather
(7) Temperature

To determine the attenuation characteristics of a circuit it is customary to make use of curves, such as those in *Figures* 1 *and* 2, showing the attenuation per mile of line for different types of facilities at different frequencies. These curves are more flexible, easier to use and contain more information than can readily be conveyed by any other means.

The Author of "Line Requirements for Carrier" is R. E. GRAHAM, manager of wire and cable carrier sales, Lenkurt Electric Co.

As shown in *Figures* 1 *and* 2, attenuation of all types of open wire is substantially greater at carrier frequencies than at voice frequencies, increasing more or less uniformly with frequency. "Crosstalk" between circuits on the same line may also cause large losses at certain frequencies due to absorption of energy, producing what are known as "absorption peaks" in the attenuation curves. *Figure* 3 shows such absorption peaks in what otherwise would be a relatively satisfactory carrier circuit. These absorption peaks,can usually be greatly reduced or entirely eliminated by carrier transposing of the line wires.

Although absorption peaks may exist on voice frequency transposed circuits, many instances will be found where very satisfactory line attenuation conditions prevail and carrier transposing of the wires will not be absolutely necessary for satisfactory carrier system operation. *Figures* 4 *and* 5 show the measured losses for two such circuits. The losses shown in *Figure* 4 are quite satisfactory for carrier operation up to 22 kc, which would permit operating one or two channels of a low-frequency carrier telephone system on these wires.

The attenuation curves of *Figures* 1 *and* 2 represent the losses encountered with wires insulated with double petticoat (DP) insulators. Several other types of insulators are also available. These are made from a special glass and for the "CS" type may result in from 13 to 25 percent transmission improvement at 30 kc. The Type "CW" insulators may affect as much as 7 percent to 15 percent improvement at 30 kc.

Due to the greater leakage resulting from wet weather conditions, the attenuation may be as much as 25 percent greater at such times. Wet weather values are usually used as the basis for engineering the layout and repeater spacing of new carrier systems. Wet weather does not, however, represent the worst transmission conditions which are likely to be encountered, since dense wet fogs,

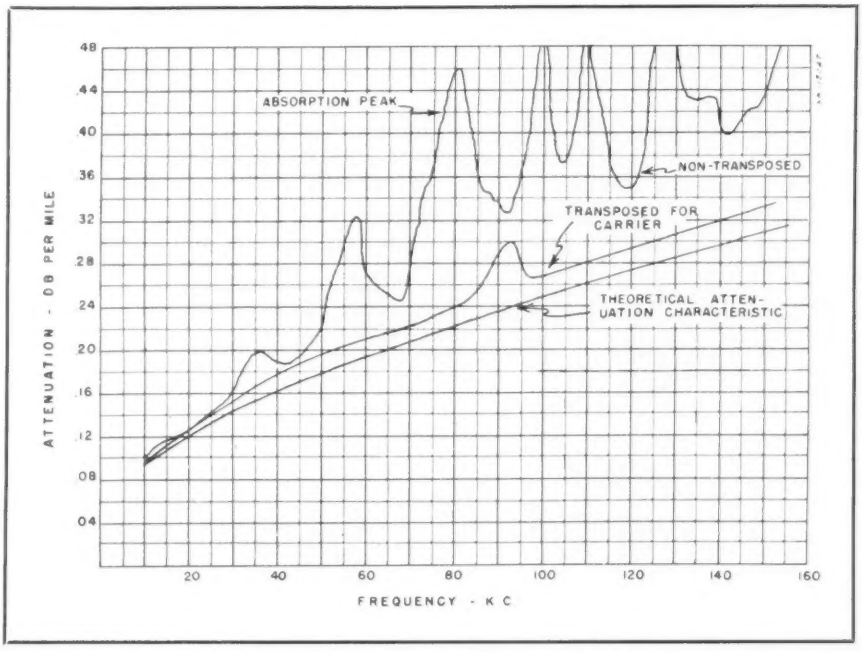


FIGURE THREE — Transposition of a line for carrier frequencies tends to eliminate absorption peaks and make the actual attenuation characteristic approach the theoretical curve.

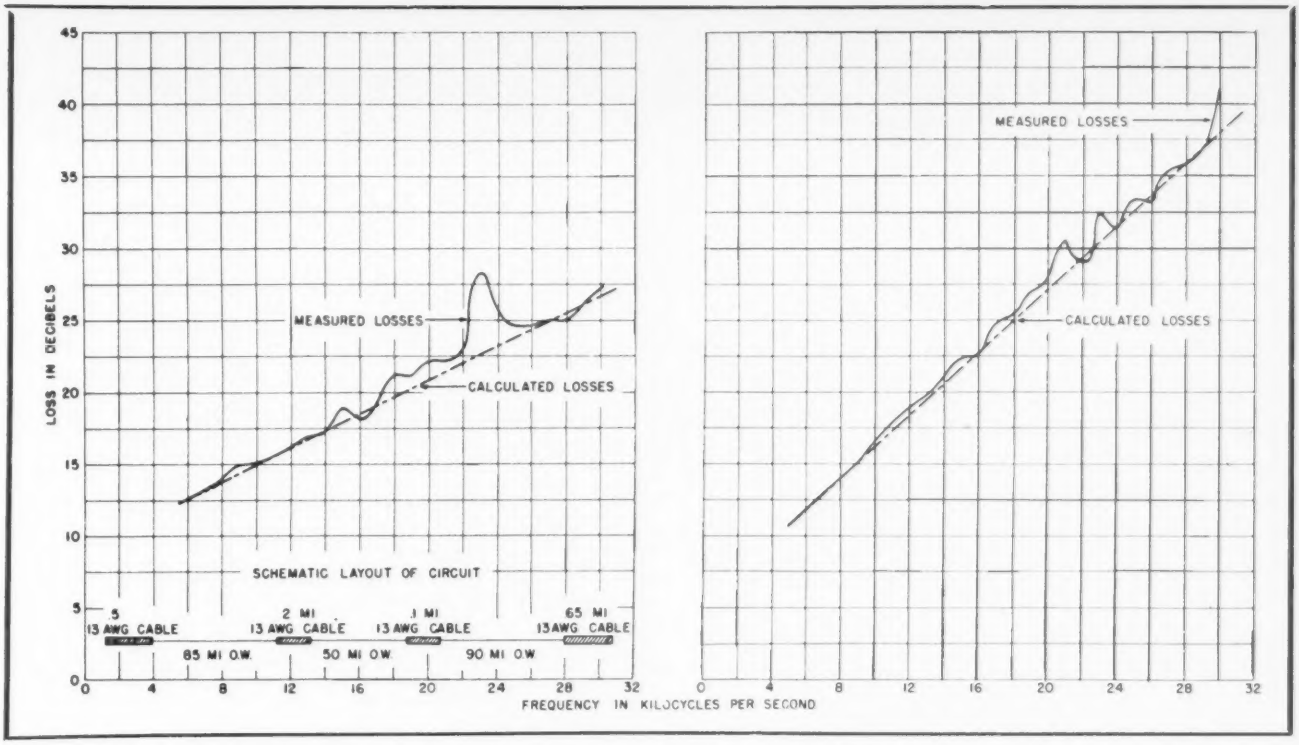


FIGURE FOUR — Attenuation characteristic of one side circuit of a phantom group with impedance matching autotransformers between the end cable sections and the open wire line. The absorption peaks are caused by the two unmatched cable inserts in the line.

FIGURE FIVE — Attenuation characteristic of the same line shown in Figure 4 with the impedance matching transformers removed from the circuit. The attenuation is reduced at the lower frequencies but greatly increased at the higher frequencies.

"hoar" frost or ice on the wires may on some occasions cause the attenuation to be increased by as much as 600 percent or more.

Impedance Irregularities

THE CHARACTERISTIC impedance of open wire lines and cables is of considerable importance in connection with the operation of carrier systems, since it is generally desirable to avoid impedance mismatches between the various circuit elements and between these elements and the carrier apparatus.

A brief non-technical definition for the characteristic impedance of a line *in the carrier frequency range* may be stated as follows: "Characteristic impedance is the apparent alternating current resistance of an infinitely long uniform line." It therefore follows that a 150 mile length of line, if cut off from the infinitely long line and terminated in a pure resistance approximately equivalent to the characteristic impedance, will exhibit substantially the same characteristics as the infinitely long line.

An inspection of *Figure* 6 reveals that, in the carrier frequency range, open wire lines present substantially a constant impedance having practically zero reactance.

All open wire pairs ordinarily used for carrier operation have a characteristic impedance between 550 and 650 ohms in the carrier frequency range while non-loaded cable pairs of the gauges normally used for long distance circuits have a characteristic impedance of approximately 135 ohms in the carrier frequency range. This difference in impedance between non-loaded cable pairs and open wire lines (or carrier apparatus) prevents securing an impedance match without special treatment for the cable pairs, such as loading or impedance matching.

Any condition which results in an impedance mismatch is termed an "irregularity." Because of the various types of circuits commonly used for communication purposes, rather wide variation in impedance at carrier frequencies is to be expected, ranging from about 135 ohms to nearly 700 ohms. If these various types of circuits are interconnected indiscriminately without suitable provisions to eliminate or greatly reduce the irregularity, reflections will occur at the junctions between such dissimilar facilities. Even a change in the spacing of the wires changes the characteristic impedance, thus constituting a minor irregularity. Wherever an impedance mismatch is the cause of objectionable attenuation or reflection, it can be corrected by simple impedance matching transformers or networks.

If a "leg" or "branch" circuit is connected to a "through" circuit, the branch circuit will constitute an impedance irregularity with respect to the through circuit. This is because the branch circuit represents an impedance bridged across the through circuit. If the impedance of the through circuit is assumed to be 600 ohms and the branch circuit also assumed to have an impedance of 600 ohms then the resulting impedance at the junction between these two circuits will be substantially less than 600 ohms, and serious reflection losses will result.

In some instances dispatching telephone systems are used for carrier operations. Circuits of this type usually present an impedance problem as well as increased attenuation due to the large number of bridged drop wires or cables. The relatively high capacity of paired wires and cables causes an appreciable bridging loss, besides numerous minor reflections somewhat similar to the reflections caused by an open wire branch. To overcome the additional losses due to

this source it may be necessary to reduce the length of the carrier repeater section or reduce the losses by removing some of the bridged drop wires and telephones. In some instances these losses can be somewhat reduced by installing blocking filters between the open wire line and the drop wire.

Other irregularities which affect the attenuation, crosstalk and noise conditions on a line used for carrier operation usually come under the head of "poor maintenance" and consist of such items as leakage due to trees, brush or weeds grown into a line; broken insulators; bad joints in the line wires, jumper wires; and poorly maintained or corroded fuse contacts, switch or jack contacts.

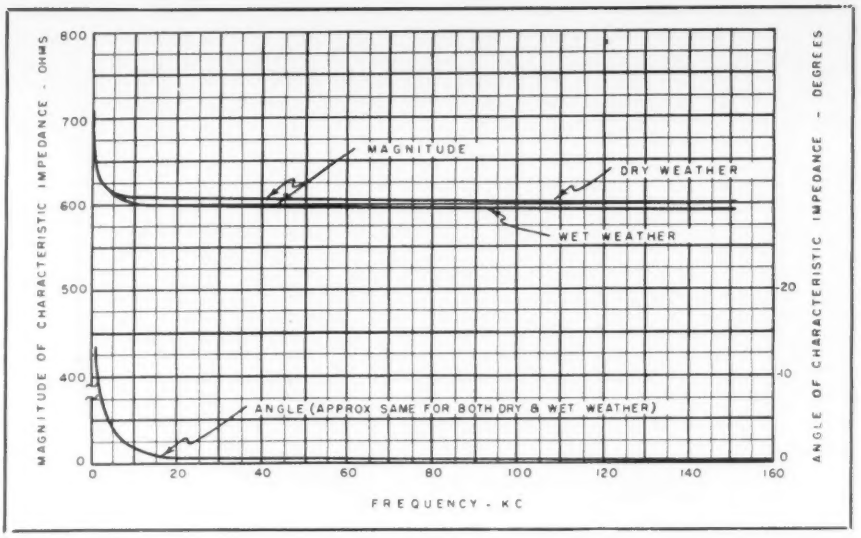


FIGURE SIX — Variation of characteristic impedance with frequency of typical open wire line with 8-inch spacing for both wet and dry operating conditions.

Noise And Crosstalk

THE EARLIEST telephone circuits consisted of a single wire between two telephone instruments or switchboards with the earth used as the return path for the electrical impulses. This arrangement was quite satisfactory for the short distances between the terminals of the circuits in those days. It was soon discovered, however, that paralleling telephone circuits of this type tended to interfere with each other in that the "talk" on one of them would "cross" over to the others, and vice versa. Therefore the name crosstalk. The magnetic field due to the current in a wire reacts on the nearby wires to "induce" a current due to magnetic induction. Also, the electric field due to the voltage on a wire will react on the other wires due to electro-static induction. The combined effects result in crosstalk.

By a somewhat similar process other unwanted disturbances are induced into the telephone circuits from paralleling power lines, the usual fundamental frequency of which is 60 cycles. This is too low in frequency to seriously interfere with telephonic or carrier transmission. Unfortunately, however, the currents being transmitted over the power lines usually include many harmonics of the fundamental frequency, some of which may lie in the carrier frequency range. These harmonic frequencies may be of sufficient magnitude to create serious noise interference unless suitable preventive measures are taken.

Two long paralleling telephone circuits or paralleling telephone and power circuits will so seriously react on each other that the telephone circuits will be completely unserviceable unless they are "balanced" against each other and against the paralleling power line. Since noise and crosstalk are largely due to inductive effects they tend to increase in magnitude with the length of the paralleling circuits, with the strength of the interfering current, and with the frequency of the interfering current. This latter factor is of the greatest consequence when paralleling carrier systems are involved due to the relatively high frequencies being transmitted.

The higher carrier frequencies also are attenuated more rapidly, therefore requiring greater amplification to maintain the same transmission level at all terminals and repeaters. This factor also tends to aggravate the noise and crosstalk problem.

Fortunately, open wire lines usually are not excessively noisy in the carrier frequency range unless exposed to power lines which are equipped with defective apparatus. Defects of this type may result in high frequency components of a sufficiently high level to create considerable noise in the carrier channels. It is usually possible to enlist the cooperation of the power company involved to eliminate conditions of this sort.

Since crosstalk represents the transmission of telephonic or telegraphic currents from one circuit into another, it follows that crosstalk transmission loss or crosstalk coupling between two circuits can be measured in the same general way as direct transmission is measured on one circuit. Crosstalk between different carrier systems is frequently referred to as inter-system crosstalk. Much can be done to control this type of crosstalk by transmitting the same levels of energy on all paralleling systems at all terminals and repeater points and by proper transposing of the wires on which the several carrier systems are operated.

Carrier Transposing Of Telephone Circuits

NOISE AND CROSSTALK, both of which are generally due to induced effect, can be tremendously reduced by transposition of the line wires. By interchanging the relative positions of the two wires at frequent and regular intervals, unequal couplings between the two line wires and other circuits or earth tend to be cancelled out and the average couplings of both conductors become very nearly the same. The number of transpositions required and the complexity of the transposition scheme depend on the frequency range to be transmitted and the number and nature of adjacent lines.

Elaborate transposition schemes have been developed to meet practically all requirements both from a crosstalk and induced noise standpoint. A transposition system developed primarily to prevent crosstalk at carrier frequencies will also be very effective in preventing voice frequency crosstalk and noise.

Since different carrier transposition systems were developed to meet the various frequency requirements

Please Turn To Page 94

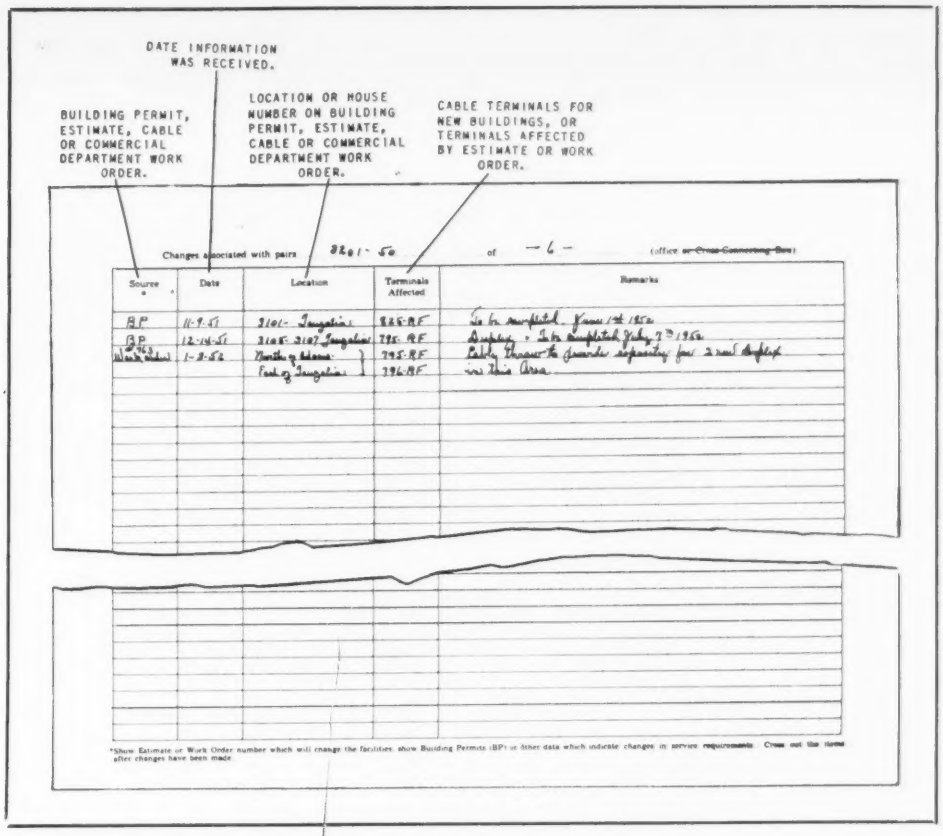

DATE INFORMATION WAS RECEIVED.
BUILDING PERMIT, ESTIMATE, CABLE OR COMMERCIAL DEPARTMENT WORK ORDER.
LOCATION OR HOUSE NUMBER ON BUILDING PERMIT, ESTIMATE, CABLE OR COMMERCIAL DEPARTMENT WORK ORDER.
CABLE TERMINALS FOR NEW BUILDINGS, OR TERMINALS AFFECTED BY ESTIMATE OR WORK ORDER.
Changes associated with pairs 3201-50 of —6— (office or Cross-Connecting Box)
Source* Date Location Terminals Affected Remarks
BP 11-9-51 3101- Imperial 225-RF To be completed June 1st 1952
BP 12-14-51 3105-3107 Imperial 795-RF Complete - to be completed July 7th 1952
(Work Order) 1-2-52 North of Adams - 795-RF Cable Throughout Grounds separately for 2 real duplex
East of Imperial 796-RF in This Area
*Show Estimate or Work Order number which will change the facilities, show Building Permits (BP) or other data which indicate changes in service requirements. Cross out the items after changes have been made.

FIGURE EIGHTEEN — The back of the cable record sheet lists specific information on coble plant expansion.

CABLE PLANT CONSTRUCTION

By JOHN S. REED

In Part II-B of his training course, Mr. Reed discusses — (1) Cable Record Book; (2) Terminal Feed Record; and (3) Terminal Exposure Section of the Cable Record.

Cable Record Book

THE CABLE record sheet is arranged in a manner calculated to best meet the needs of the telephone plant organization. In general, the cable record sheet lists cable pairs and their terminations at subscribers' numbers and the main distributing frame. This information is arranged to show the connections at the main frame, cross-connecting terminals, cable terminals, and, finally, the subscribers' numbers. The record also shows the terminals and pairs that are in multiple and indicates the location of the terminals. For exchanges having line intermediate distributing frame facilities, line equipment numbers and positive and negative designations for party-line numbers are included. In addition, provision may be made for color code entries to distinguish between terminals in the same rack count, but located in different geographical areas.

Space is provided on the back of the record sheets to record current data on job proposals, progress reports, held orders, and service demands in new housing areas, as well as locations where there is a lack of cable facilities. The information on development activities is valuable to persons desiring information as to what is being done to relieve a tight area, how many new houses or buildings it will be necessary to furnish service to, and whether a change of service can be allowed without relief measures being required. *Figure* 18 indicates the specific nature of the information and the sources of the information. The data is entered in pencil and when the project is completed a line is drawn through the related data.

The front page of the cable record sheet (*Figure* 21) is designated as the cable assignment side, while the back page is the cable development

side (*Figure* 18). The record sheets are arranged with the development side on the left and the assignment side on the right to bring all related information in view when the cable record book is opened. This arrangement enables looking up the desired information without having to turn the pages back and forth.

Terminal Feed Record

SINCE EACH cable record sheet provides space for only 50 cable pairs, a large number of sheets will be required to record all pairs contained in main and lateral cables in the larger exchanges. As indicated in *Figure* 19, it may also be necessary to provide separate binders for the record sheets for easier handling and to make the record sheets more accessible. Each binder is numbered in consecutive order and each page of the binder is consecutively numbered, beginning with *Page One* and continuing in numerical order to the back of the book.

The recording system used in the cable record book discussed employs the letter and numeral code to designate the location of the terminal. When a number of cable record books are required for entering the desired information on cable pair and main frame counts, a terminal feed record is necessary to correlate the street addresses and terminal locations. The feed record may be maintained in book form as shown in *Figure* 20 or it may be set up as a card record.

This record may be divided into sections listing house addresses by street names, street numbers, and street letters. In addition to showing the terminals associated with street addresses, the record gives the numbers of the cable record book and pages in which the terminals are entered as indicated in *Figure* 20.

For example, if service is requested at 5204 Cooper Street, reference to the street name section of the feed book would show that this address works out of terminal 385 RA. The cable book number listed with this terminal is "5" and the page number is "63." Reference to this page number of Cable Book No. 5 will locate the desired terminal and the rack count for assigning the service.

Cable Record Entries On Assignment Side

IN THE LARGER exchanges, a number of cables terminate on the main distributing frame. To identi-

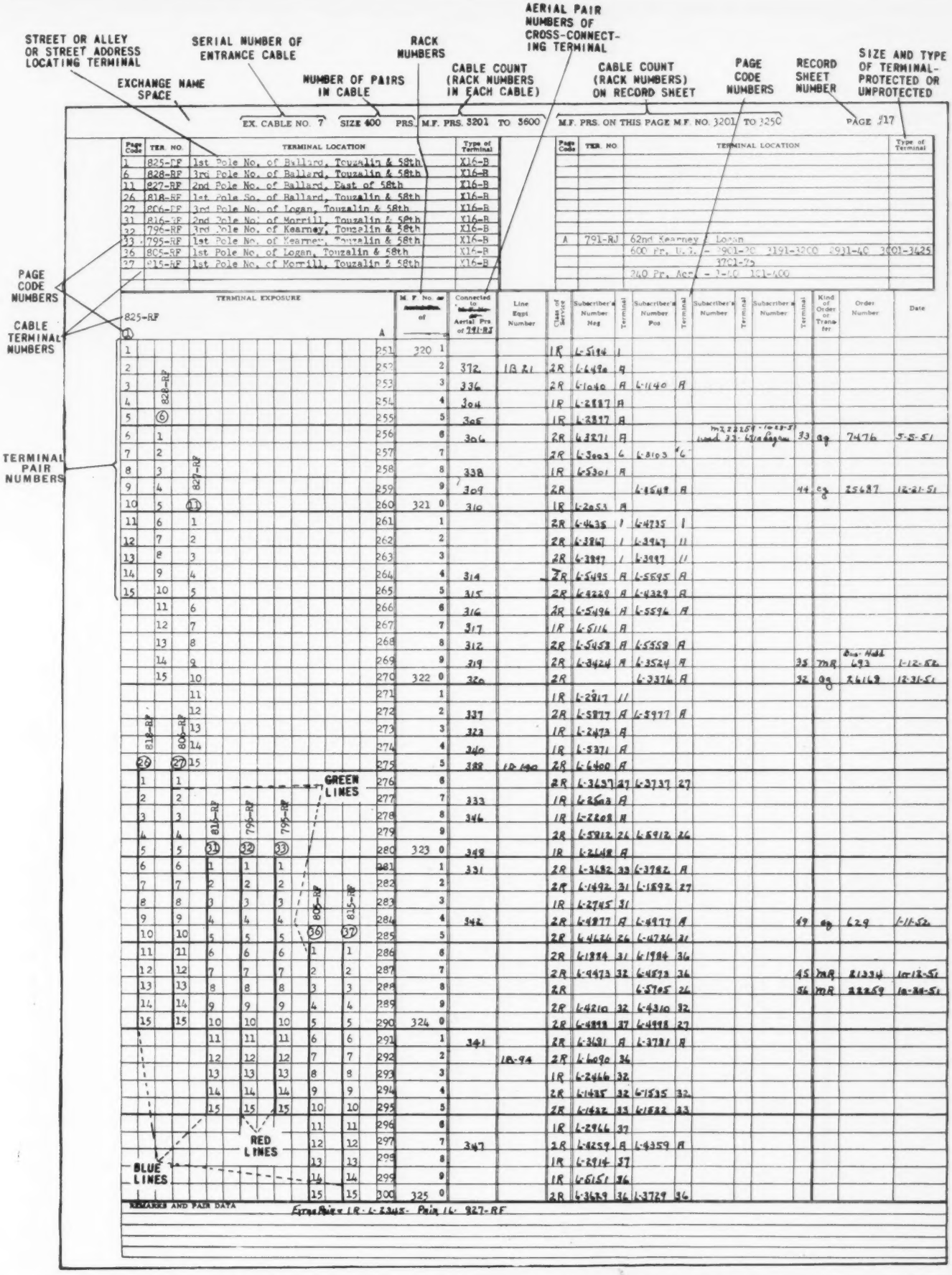
FIGURE NINETEEN — In a large exchange, the cable record sheets are kept in binders filed in a metal book rack. Note terminal feed record books at right.

FEED RECORD

STREET Cooper

EVEN				ODD			
TERM. NO.	BOOK	PAGE	STREET NUMBER FROM — TO	TERM. NO.	BOOK	PAGE	STREET NUMBER FROM — TO
	Cooper		—		Cooper		—
No. Feed			4200 — 4298	No. Feed			4201 — 4299
3400QC	5½	37	4300 — 4398	3400QC	5½	37	4301 — 4399
3400QC	5½	37	4400 — 4498	3400QC	5½	37	4401 — 4499
385 QD	5	59	4500 — 4598	395 QD	5	59	4501 — 4599
385 QE	5	59	4600 — 4622	396 QE	5	59	4601 — 4609
386 QE	5	59	4624 — 4698	395 QE	5	59	4611 — 4699
386 QE	5	58	4700 — 4798	391 QE	5	59	No Feed — Out Lo
Union College —							—
384 QG	5	53	4800 — 4898	345 QE	5	58	4701 — 4799
384 QG	5	53	4900 — 5098	Union College —			
385 QJ	5	55	5100 — 5198	385 QG	5	53	4801 — 4899
385 RA	5	63	5200 — 5222	384 QG	5	53	4901 — 5099
387 RA	5	63	5224 — 5230	395 QJ	5	55	5101 — 5199
386 RA	5	63	5232 — 5298	395 RA	5	56	5201 — 5225
385 RB	5	63	5300 — 5314	396 RA	5	56	5227 — 5249
387 RB	5	63	5316 — 5328	395 RB	5	56	5251 — 5309
386 RB	5	63	5330 — 5398	395 RB	5	56	5311 — 5331
386 RB	5	63	5400 — 5498	396 RB	5	56	5333 — 5347
386 RB	5	63	5500 — 5598	397 RB	5	56	5349 — 5599
386 RB	5	63	5600 — Limits				—
			—				—
			—				—
			—				—

FIGURE TWENTY — From the feed record is obtained the terminal numbers associated with the street addresses, also the proper binder and page numbers of the cable record.


STREET OR ALLEY OR STREET ADDRESS LOCATING TERMINAL
EXCHANGE NAME SPACE
SERIAL NUMBER OF ENTRANCE CABLE
NUMBER OF PAIRS IN CABLE
RACK NUMBERS
CABLE COUNT (RACK NUMBERS IN EACH CABLE)
AERIAL PAIR NUMBERS OF CROSS-CONNECTING TERMINAL
CABLE COUNT (RACK NUMBERS) ON RECORD SHEET
PAGE CODE NUMBERS
RECORD SHEET NUMBER
SIZE AND TYPE OF TERMINAL-PROTECTED OR UNPROTECTED
PAGE CODE NUMBERS
CABLE TERMINAL NUMBERS
TERMINAL PAIR NUMBERS
GREEN LINES
RED LINES
BLUE LINES

EX. CABLE NO. 7 SIZE 400 PRS. M.F. PRS. 3201 TO 3600 M.F. PRS. ON THIS PAGE M.F. NO. 3201 TO 3250 PAGE #17

Page Code	TER. NO.	TERMINAL LOCATION	Type of Terminal
1	825-RF	1st Pole No. of Ballard, Touzalin & 58th	X16-B
6	828-RF	3rd Pole No. of Ballard, Touzalin & 58th	X16-B
11	827-RF	2nd Pole No. of Ballard, East of 58th	X16-B
26	818-RF	1st Pole So. of Ballard, Touzalin & 58th	X16-B
27	806-RF	3rd Pole No. of Logan, Touzalin & 58th	X16-B
31	816-RF	2nd Pole No. of Morrill, Touzalin & 58th	X16-B
32	796-RF	3rd Pole No. of Kearney, Touzalin & 58th	X16-B
33	795-RF	1st Pole No. of Kearney, Touzalin & 58th	X16-B
36	805-RF	1st Pole No. of Logan, Touzalin & 58th	X16-B
37	815-RF	1st Pole No. of Morrill, Touzalin & 58th	X16-B

Page Code	TER. NO.	TERMINAL LOCATION	Type of Terminal
A	791-RJ	62nd Kearney & Logan 600 Pr. U.T. - 3201-30 3191-3200 3131-40 3201-3425 3701-75 240 Pr. Aer. - 1-40 161-400	

825-RF (1)

	TERMINAL EXPOSURE													M. F. No. of	Connected to Aerial Prs of 791-RJ	Line Eqpt Number	Class of Service	Subscriber's Number Neg	Terminal	Subscriber's Number Pos	Terminal	Subscriber's Number	Terminal	Subscriber's Number	Terminal	Kind of Order or Transfer	Order Number	Date
1													A	251	320 1			1R	L-5114	1								
2														252	2	372	1B R1	2R	L-6498	A								
3												828-RF		253	3	336		2R	L-1040	A	L-1140	A							
4														254	4	304		1R	L-2817	A								
5												(6)		255	5	305		1R	L-2837	A								
6												1		256	6	306		2R	L-3271	A								
7												2		257	7			2R	L-3003	A	L-8103	A						
8												3	827-RF	258	8	338		1R	L-5301	A								
9												4		259	9	309		2R			L-6548	A						
10												5	(11)	260	321 0	310		1R	L-2053	A								
11												6	1	261	1			2R	L-4435	1	L-4735	1						
12												7	2	262	2			2R	L-3947	1	L-3947	11						
13												8	3	263	3			2R	L-3997	1	L-3997	11						
14												9	4	264	4	314		2R	L-5495	A	L-5595	A						
15												10	5	265	5	315		2R	L-4329	A	L-4329	A						
												11	6	266	6	316		2R	L-5496	A	L-5596	A						
												12	7	267	7	317		1R	L-5116	A								
												13	8	268	8	312		2R	L-5453	A	L-5553	A						
												14	9	269	9	319		2R	L-3424	A	L-3524	A			35	MR	Bus-Hdl 693	1-12-52
												15	10	270	322 0	320		2R			L-3376	A			32	Og	26169	12-31-51
													11	271	1			1R	L-2917	11								
													12	272	2	327		2R	L-5977	A	L-5977	A						
												818-RF	13	273	3	323		1R	L-2473	A								
												806-RF	14	274	4	340		1R	L-5371	A								
												(26)	(27) 15	275	5	328	1B-190	2R	L-6400	A								
												1	1	276	6			2R	L-3637	27	L-3737	27						
												2	2	277	7	333		1R	L-2603	A								
												3	3	278	8	346		1R	L-2208	A								
												4	4	279	9			2R	L-5912	26	L-5912	26						
												5	5	(31)	(32) (33)			1R	L-2648	A								
												6	6	1	1 1			2R	L-3682	33	L-3782	A						
												7	7	2	2 2			2R	L-1492	31	L-1892	27						
												8	8	3	3 3			1R	L-2745	31								
												9	9	4	4 4	342		2R	L-4977	A	L-4977	A			49	Og	629	1-11-52
												10	10	5	5 5			2R	L-4634	26	L-4734	31						
												11	11	6	6 6			2R	L-1984	31	L-1984	36						
												12	12	7	7 7			2R	L-9473	32	L-4873	36			45	MR	21334	10-12-51
												13	13	8	8 8			2R			L-5705	26			56	MR	22259	10-30-51
												14	14	9	9 9			2R	L-4210	32	L-4310	32						
												15	15	10	10 10			2R	L-4998	27	L-4998	27						
														11	11 11	6 6	291	1	341		2R	L-3681	A	L-3781	A				
														12	12 12	7 7	292	2		1B-94	2R	L-6090	36						
														13	13 13	8 8	293	3			1R	L-2466	32						
														14	14 14	9 9	294	4			2R	L-1435	32	L-1535	32				
														15	15 15	10 10	295	5			2R	L-1432	33	L-1832	33				
																11 11	296	6			1R	L-2944	37						
																12 12	297	7	347		2R	L-4259	A	L-4359	A				
																13 13	298	8			1R	L-2914	37						
																14 14	299	9			1R	L-6151	36						
																15 15	300	325 0			2R	L-3629	36	L-3729	36				

REMARKS AND PAIR DATA — Extra Pair = 1R-L-2345- Pair 14- 827-RF

FIGURE TWENTY-ONE — The cable record lists information on cable terminal locations, terminal exposure, main frame numbers, and associated telephone numbers. This particular record sheet also shows underground and aerial cable pairs for a cross connecting terminal.

the finest telephone Leich has ever made...

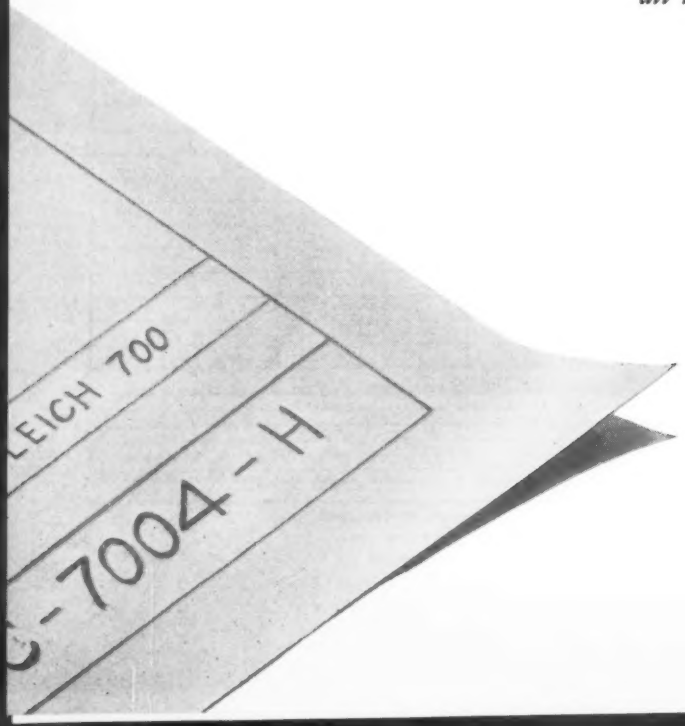
When you examine it — when you use it — you'll almost feel as though you had designed this new Leich telephone.

From the great improvement in transmission to the modern, almost unbreakable case . . . you'll find this Leich 700 has all the things you yourself would have built into a telephone.

This is an entirely new instrument. Every one of its many new features are important and practical.

With this Leich 700, you can offer the finest telephone service ever. Fewer maintenance trips . . . fewer than you ever dared hope for . . . is another advantage you can expect.

Why not write today for the new catalog on this Leich 700 telephone? It describes all important improvements in detail. It's free, so write today.



LEICH

with more features that mean more profit for the telephone company

IMPROVED TRANSMISSION

Leich's new shorter handset places the transmitter closer to the user's mouth. This increases transmission from 3 to 5 decibels, makes this the talkingest telephone you've ever used.

NEW HOOKSWITCH

The new Leich hookswitch is more positive and dependable than ever before. It is actuated by a simple, positive lever action. The make and break springs are positioned by card type stops. Their permanent adjustment will not change in service.

NEW RINGER

The new Leich single-coil ringer is the highest impedance ringer Leich has ever made. It is easy to adjust and adaptable for every kind of ringing.

EXTENDED DIAL RING

This easy-to-read dial, with the numbers on the outside, helps prevent wrong numbers. Your customers will really appreciate this feature.

FLEXIBLE CIRCUIT

The Leich 700 telephone has reliable spade connections. By changing these connections the Leich telephone can be easily and quickly adapted for every type of service in general use.

LONGER SERVICE LIFE

Here's a telephone you can expect to give good service for years with a very minimum of service. All the parts have been carefully designed and made to operate without any adjustment or maintenance required.

ALL PARTS MAY BE INDIVIDUALLY REPLACED.

This is an economy feature of the new Leich 700 telephone. For example — if a condenser is shorted by lightning, it is necessary only to replace the condenser, not a whole network of parts.

SAME TELEPHONE MAY BE USED FOR WALL OR DESK INSTALLATIONS.

This wall-desk feature was developed by Leich. It's part of the design of the telephone. It allows you to use the same telephone for either wall or desk installations. You don't have to buy, add or change a single thing.

HOOKSWITCH LATCH

This optional feature is very popular for party line service. It prevents transmission losses when other parties on the line listen in. It also prevents interference with dial pulsing.

PROVISION FOR TUBE RINGING

Mounting space is provided in the base of the new Leich telephone for ringing tubes. Any one of four type of tubes may be used.

MANUFACTURERS OF TELEPHONES, SWITCHBOARDS AND RELATED APPARATUS SINCE 1907

LEICH SALES CORPORATION, 427 W. RANDOLPH STREET, CHICAGO 6, ILLINOIS

PACIFIC COAST: 2611 SAWTELLE BLVD., LOS ANGELES 64, CALIF. SOUTHWEST: 1227 SLOCUM ST., DALLAS 7, TEXAS

GENERAL TELEPHONE SYSTEM

fy these cables and to show the rack count in every cable, a metal tag is attached to each cable. The tag lists the cable serial number, the size in pairs, and gauge, and the rack count of the pairs contained in the cable. The information on the tag and the rack count included in the record sheet are entered at the top of the sheet as shown in *Figure* 21.

The two boxes at the head of the record page list information on the cable terminals, such as page code numbers and their associated terminal numbers, the locations of the terminal by street, alley, or street address, the size in pairs and the type of terminal, whether protected or unprotected. When cross connecting terminals are involved, the size of the terminal in pairs and the pair count or numbers are indicated in the last column.

Terminal Exposure Section Of Cable Record

THE CABLE pairs in the terminals are listed in the Terminal Exposure section of the cable record. These pair numbers may range from 1 to 10, 1 to 15, or 1 to 25, etc., according to the size of the terminals. These terminal pair numbers are listed in the terminal exposure columns in the same order as their rack numbers. Thus, the terminal pairs with the lowest rack numbers appear in the first column, and then follow other pair groups with next higher rack numbers in successive columns.

This arrangement places terminal pairs on the same horizontal line on the record sheet as the rack number of the cable pair in the multiple; thus a cable pair with rack number 3211 in the column to the right has outlets at pair 11 in terminal No. 825-RF, pair 6 in No. 828-RF, and pair 1 in No. 827-RF.

At the head of each row of terminal pair numbers on the record sheet is entered the page code number. The page code numbers are intended to refer each group of terminal pair numbers to its terminal number.

When the practice is to start a terminal only on line 1, 6, 11, 16, or any multiple thereof, the page code numbers appear in cycles of five pairs as follows:

First five terminal pairs — page code 1 (1-5)

Next five terminal pairs — page code 6 (6-10)

Next five terminal pairs — page code 11 (11-15) etc. to —

Last five terminal pairs on the page — page code 46 (46-50)

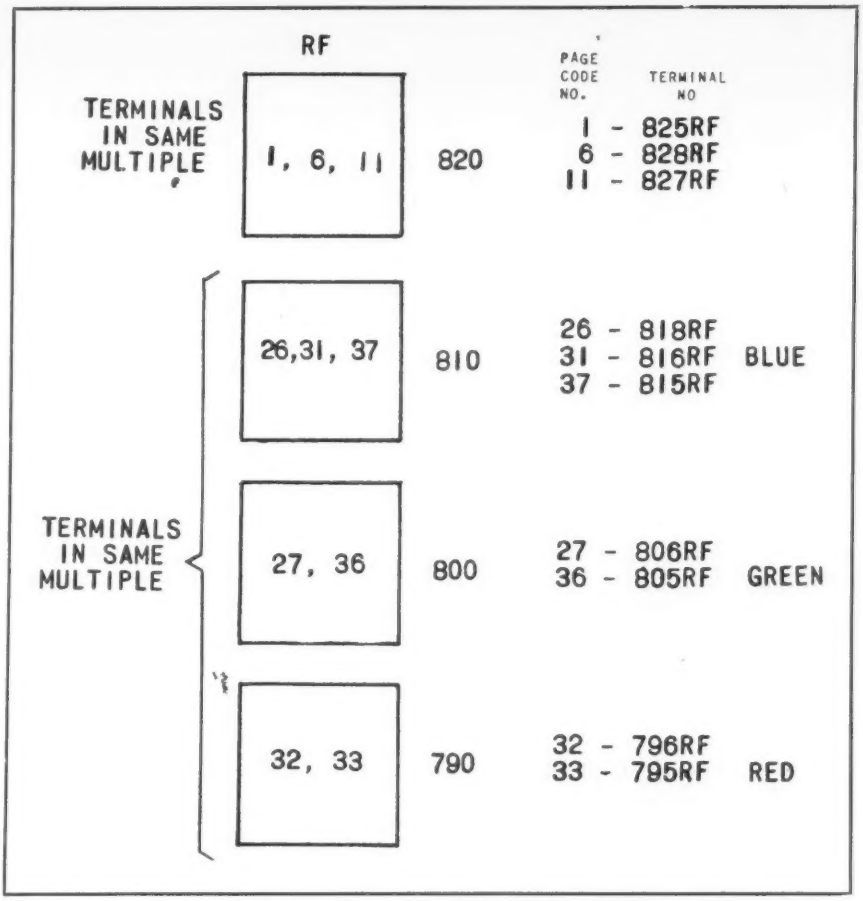


FIGURE TWENTY-TWO — The color code system identifies cable terminals in the same multiple but in different geographical areas (city blocks).

Page code numbers other than 1, 6, 11, etc., such as 2, 3; 7, 8; 12, 13 etc., are used when two or more terminals are multipled with the pairs in these terminals having the same pair numbers. For example, page code 11 would be assigned to the group of pairs (1 to 15) appearing in the first terminal; then page code 12 to the same group of pairs (1 to 15) appearing in the second terminal, and so on for the number of terminals involved.

To facilitate reference, the terminal numbers also are shown at the head of the groups of terminal pair numbers, just above the page code designations.

It will be often found that there are cable terminals in the same multiple, but located in different geographical areas. In exchanges operating on a terminal-per-line basis, it is very important to prevent the possibility of a party line subscriber in one area being assigned the same cable pair as another subscriber in a remotely located area. Such a situation may result in bridged cable pairs because of cable relief work separating the multipled terminals in the areas involved. Bridging at the main frame results in the loss of cable pairs which could have been assigned to subscribers needing telephone service.

To avert such situations, the terminals, page code numbers, and pairs in the terminals are entered in the terminal exposure section by a color code system to segregate terminals in the same multiple, but located in different geographical areas, (Figure 21). Thus in *Figure* 22, terminals 815-RF, 816-RF, and 818-RF which are in the same block have a blue line drawn alongside their pair numbers. Terminals 795-RF and 796-RF, which are also close together have some of their pairs multipled in terminals 815-RF, 816-RF, and 818-RF. These terminals are in a different lateral, hence their pair groups and page code numbers are indicated by a red line alongside their pair numbers. The other group of terminals in the same multiple, 805-RF and 806-RF are distinguished from the other groups by a green line paralleling each row of pair numbers.

All related terminals of the same color code should be grouped in ad-

JOHN S. REED of the Lincoln (Neb.) Tel. & Tel. Co. is author of "Cable Plant Construction." Part One of Mr. Reed's training course appeared in the Nov. TELEPHONE ENGINEER & MANAGEMENT.

jacent columns, whenever possible. In fact, if an irregular arrangement of the vertical rows of terminal pairs on the record sheet is not objectionable, the multipled terminal pairs in the same geographical area may be grouped together to elminate the need for a color code system. Thus in the foregoing example, terminal page codes 26 to 37 could be grouped as 26, 31, 37; then 27, 36; and finally 32, 33 and the red, blue, and green color lines could be omitted. This grouping possibility is clearly indicated in *Figure* 22.

Where the exchange operates on a terminal-per-station basis, this segregation of multipled terminals is not necessary, and it is perfectly satisfactory to assign the same cable pair to two or more party line subscribers without regard to their location. Then if the multiple is split later on, the necessary transfers can be effected on the line intermediate distributing frame without changing the subscribers' telephone numbers.

To Be Continued in the February issue of TELEPHONE ENGINEER & MANAGEMENT. *Next month Mr. Reed will discuss* — (1) *Recording the use of Pairs,* (2) *Main Frame Number Entries, and* (3) *the Cross-Connecting Terminal Record.*

"CABLE PLANT CONSTRUCTION"

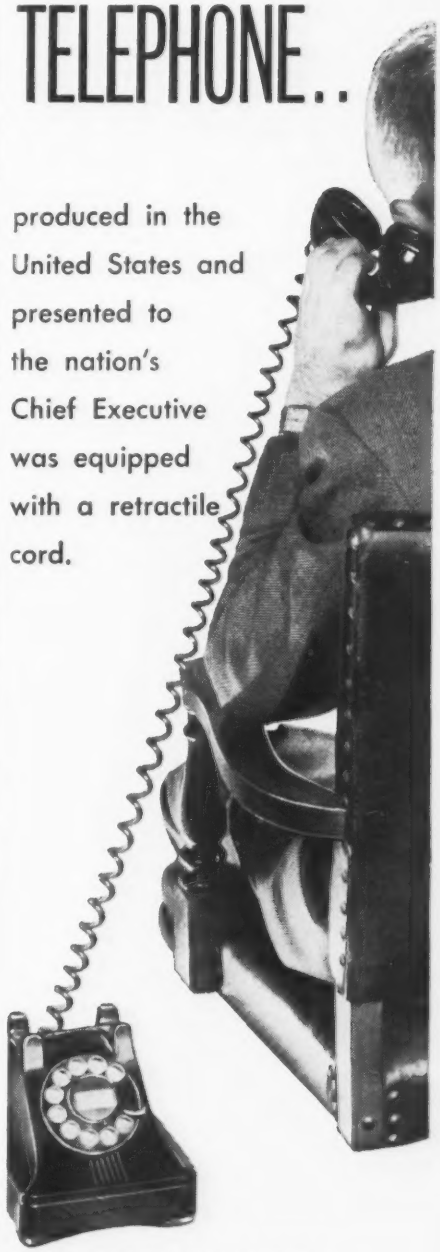
This new and up-to-the-minute training course has been completed for exclusive publication in TELEPHONE ENGINEER & MANAGEMENT by Mr. John S. Reed, one of the industry's leading telephone engineers. The course has been written in easy-to-understand language. It is profusely illustrated with drawings and illustrations. It thoroughly covers all phases of cable construction from a comparison of the merits of Cable Plant versus Open-Wire Plant right through making the original plans, building the Cable Plant together with instructions on maintenance of the plant after it has been completed.

This course should prove valuable to old time cable men as well as to men just entering this phase of the business. It will serve as a valuable reference book encompassing the latest and most efficient manner in cable construction and maintenance . . . and prove most useful for companies desiring to conduct training courses among present employees. The course will appear monthly in chapter form until the course is completed. At the end of each chapter Mr. Reed has prepared a series of questions for the student to answer in order to review his studies. These questions have been prepared to aid both the individual student or an entire class of students.

See Ad Describing Course on Page 109.

THE 50 MILLIONTH TELEPHONE..

produced in the United States and presented to the nation's Chief Executive was equipped with a retractile cord.



KEEP IN STEP...

Specify Koiled Kords on all new telephones and use them for replacements.

Koiled Kords
INCORPORATED

Box K, New Haven 14, Conn.

Three vital factors determine the wise choice of automatic switching equipment —— and financial stability may depend upon them.

Mr. Smith examines claims

Somewhere tonight a telephone man will ponder long behind closed doors.

We'll call him Mr. Smith. His is the difficult task of deciding which make of automatic switching equipment he will buy. He must examine all claims, and look for proof that the equipment he chooses will be a good investment, based on three vital factors. For upon them may depend the financial stability of his company.

These factors are: **(1) Manufacturer's Background**—How can Mr. Smith be sure the manufacturer has the experience and engineering ability to properly analyze the requirements? (*Automatic's 60 years of building successful Strowger Automatic exchanges stands as proof without equal!*) **(2) Traffic-peak Provision**—Does the manufacturer regularly provide enough switches to carry busy-hour traffic at a high grade of service, as shown on accepted traffic tables? (*Automatic does—the record proves it!*) **(3) Provision for Growth**—Does the manufacturer provide enough extra switch space, as well as extra capacity in batteries, chargers, and ringing equipment, to handle reasonable expansion? (*Automatic does—and again, the record proves it!*)

Remember these points when *you* select automatic switching equipment.

and remember—

. month by month

Strowger Automatic installations exceed all others

AUTOMATIC ELECTRIC

Originators and Developers of the Strowger Step-by-Step "Director" for Register-Sender-Translator Operation . . . Machine Switching Automatic Dial Systems

Makers of Telephone, Signaling and Communication Apparatus • Electrical Engineers, Designers and Consultants

Distributors in U. S. and Possessions: AUTOMATIC ELECTRIC SALES CORPORATION
Export Distributors: International Automatic Electric Corporation
1033 West Van Buren Street, Chicago 7, U. S. A.

TS 515

LOCAL AND TOLL PEG COUNT -- MANUAL EXCHANGES

ITEM	DAY	TYPE OF CALLS	A M 12-6	6-7	7-8	8-9	9-10	10-11	11-12	P M 12-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	TOTAL
1	1	ORIGINATING COMMON BATTERY	13	34	77	91	107															1415
2	2	" "	14	20	72	164	134															1575
3	1	ORIGINATING MAGNETO	7	23	55	61	35															642
4	2	"	6	20	53	56	41															629
5	1	ORIGINATING COIN BOX																				2
6	2	" "				1																1
7		ORIGINATING TOTAL	40	97	257	373	317															4264
8		ORIGINATING AVERAGE	20	49	129	187	159															2732
9		ORIGINATING % TOTAL DAY																				
10	1	INCOMING F.S.		5	6	5	8															53
11	2	"		5	8	9	2															75
12	1	INCOMING DIAL																				
13	2	" "																				
14	1																					
15	2																					
16	1																					
17	2																					
18	1	BOARD HOURS	5.5	1	1	2	2															34.5
19	2	" "	5.5	1	1	2	2															34.5
20	1	INFORMATION		1	2	1	1															21
21	2	"		1	2	2	2															20
22	1	INTERCEPT																				
23	2	"																				
24	1	REPAIR SERVICE																				
25	2	" "																				
26	1	OUT TOLL CALLS FILED			1	6	7															39
27	2	" " " "		2	4	4	6															40
28		TOTAL		2	5	10	13															79
29		% TOTAL DAY																				

ITEM	DAY	TOLL CALLS DATE	NUMBER
31			
32	1	9-25	40
33	2	9-28	44
34	3	9-29	54
35	4	9-30	50
36	5	10-1	38
37	6	10-2	32
38	7	10-5	39
39	8	10-6	50
40	9	10-7	40
41	10	10-8	40
43			
43		TOTAL	427
44		AVERAGE	43

ITEMS	1ST DAY	2ND DAY	TOTAL
DETAILS OF TOLL CALL PASSED TO TC BY TRIB	3	1	4
CLG. PTY. CONNECTED TO LONG DISTANCE	81	74	154
HOURS COUNTED IN LOAD--BOARD			
--SUPV.			
--AUXILIARY			
--TOTAL			

	CALLS	COEF	UNITS	HOURS	LOAD
LOCAL	2132	1.08	2303		
TOLL	40	22.4	896		
TOTAL			3199		

EQUATED LOCAL TRAF.	CALLS	COEF	UNITS
ORIG. COMMON BATTERY	2990	.91	2721
ORIG. MAGNETO	1271	1.15	1462
ORIG. COIN BOX	9	1.19	4
TOTAL ORIGINATING	4264		
INFORMATION	41	2.20	90
INTERCEPT			
PASSED TO TOLL CENTER	4	2.80	11
RECORDED AT TOLL CENTER	154	1.25	193
INCOMING F.S.	129	.98	125
TOTAL			4606
LOCAL UNITS PER ORIGINATING CALL			1.08

LINE AND STATION DATA CLASS	LINES	STATIONS
73 COM. BTY.-URBAN		
74 COM. BTY.-RURAL		
75 MAGNETO-URBAN		
76 MAGNETO-RURAL		
77 MANUAL COIN		
78 DIAL		
79 EXTENSIONS	X	
80 TOTAL		

October 5+7 1953
DATES
Smallbrea
EXCHANGE

F.S. = free service

EXHIBIT ONE — Local and Toll Peg Count.

TRAFFIC TAKES INVENTORY

By RUTH E. RICHARDS

When the traffic department inventories its product — telephone service — it takes a peg count. Accurate peg counts are a necessity and all members of the operating force should know what constitutes a call for peg count purposes.

NOTICE
This store will be closed all day Monday — for our annual inventory.

YOU'VE SEEN such signs many times and accepted the possible inconvenience because you knew that the merchant must have a time of stocktaking if he were to continue to operate his business successfully. He must know how much he sells and the cost of selling his products.

Although our merchandise isn't stored on shelves or stocked in bins, we too have a "*stocktaking*" period. This inventory of our product—telephone service—is termed a peg count. It is a time-honored term, carried over from the days when the counts actually were made by inserting pegs in holes to count the numbers of calls handled. Now we use hand operated meters, tally slips, automatic registers and toll tickets to get our counts of traffic. Unlike the merchant who can close his doors for a day and count his stock, we must do most of our counting as calls are made, for ours is strictly a tailored-to-order service, produced at the time and as requested by the customer.

The peg count is one of the most important records in the traffic department. It is used to determine the operating force required, and as a basis for estimating future require-

ments. From peg count data, load and cost studies are made, and cord and trunk and switchboard position requirements determined. It is also the basic record for determining building and equipment requirements.

With these facts in mind it is easy to see that accurate peg counts are a necessity, and that all members of an operating force should know exactly what constitutes a call for peg count purposes.

Two Classes of Peg Counts

PEG COUNTS are divided into two classes, local and toll. Local peg counts are of two kinds, regular peg counts (*Exhibit 1*) and supplementary peg counts. The regular peg count is primarily a count of the number of calls handled in an office; it is an hourly count of originating and incoming traffic for two days, taken two or more times a year, according to the volume of traffic offered.

The supplementary count is a detailed analysis of local calls according to the method of completion. For small office usage the coefficients given here and the examples shown should provide sufficient information to determine weighted coefficients without taking a complete supplementary peg count.

In considering the taking of a peg count you might recall the old adage about a dog whose "bark was worse than his bite." Any outline for taking a count of traffic items must of necessity be somewhat detailed, and therefore gives the impression of being complicated. Actually this is not the case even though we stress the fact that care must be exercised. In taking a toll count, only a portion of the tickets filed will carry the additional credit items to be counted.

To insure accuracy, the person responsible for the count should — (1) determine how the various items are to be counted, this is, whether by meters, tally slips or ticket count, and (2) prepare for the count by designating meters or tally slips in advance, and by instructing operators on what they are to count; on how they are to count, and where they are to count.

Rules for Counting — Local: — An operator should count one call for each of the following:

(1) When she answers a line signal and a customer requests a connection or communicates with her for any purpose.

RUTH E. RICHARDS, author of TELEPHONE ENGINEER & MANAGEMENT'S Traffic Department articles, is Methods Supervisor of the General Telephone Co. of Illinois, Springfield. Miss Richards started her telephone career in 1917.

(2) When she receives a new (different) order from a customer in response to a recall or when voluntarily supervising the connection. This will include second orders received on calls originally referred to an information or intercept operator, or supervisor.

(3) When she plugs up a magneto line on which a customer is signalling another station on his own line.

In exchanges serving fewer than 750 stations, two counts a year are generally considered adequate. (EXCEPTION: In some states, regulatory bodies require more frequent counts.)

Quarterly peg counts taken in January, April, July and October are advisable in exchanges serving from 750 to 1800 stations, and monthly counts in all larger exchanges.

The count should be taken on two normally busy days as soon after the first working day of the month as possible. Since the count should cover average normal traffic, it will not be taken on a Saturday or Sunday or legal holiday, nor the day before or after a legal holiday.

Determining A Weighted Coefficient

THE PURPOSE of peg counts taken on various classes of traffic is to supply information for determining a weighted coefficient for the individual office. This coefficient represents the operator work time involved and is applied to originating calls offered on an hourly basis to determine operator and switchboard requirements.

Representative coefficients for small offices are as follows:

Class of Call	*Coefficient*
From magneto to magneto (or rural to rural)	1.25
From magneto coin box line — no ticket written	2.80
Incoming toll or free service to magneto	1.25
Information (common battery & magneto)	2.20
Calls passed to Long Distance Operator	3.15
Customer connected directly to L. D. opr.	1.25
Repair Service calls	3.00
Common battery to common battery with manual ringing	.85
Common battery to magneto	1.15
Magneto to common battery	.85
Common battery coin line — postpay	2.40

Where the scope of toll calls handled at a small office is limited to calls terminating at the toll center office or to the toll center and other tributaries of the toll center, a coefficient of 4.70 may be applied to calls ticketed and timed at the originating office. (Magneto A-B coeff. 2.75 plus 1.95 for completing via ringdown) This coefficient does not include credit for subsequent attempts.

The following is an example of the method for determining a coefficient for a small magneto office. In this example the toll units are weighed into the coefficient since the volume of toll is small and presumably the work is done by the operator who is handling local calls:

	Calls	*Coefficient*	*Units*
Flat rate	1810	1.25	2263
Coin box	20	2.80	56
Total	1830		
Added credit items Passed to L. D.	14	3.15	44
Customer connected to L. D.	79	1.25	99
Incoming	277	1.25	346
Toll Calls	54	4.70	254
		Total	3062

3062 *units* ÷ 1830 *provides a coefficient of* 1.67 (*units per call*)

This example is representative of a local coefficient determined for a

common battery office with magneto rural, manual ringing.

	Calls	Coefficient	Units
CB to CB	1850	.85	1573
B to Mag.	450	1.15	518
Mag. to Mag.	835	1.25	1044
Coin Line — Postpay	43	2.40	103
	3178		
Added credit items			
Information	148	2.20	326
Customer connected to L. D.	146	1.25	183
Repair Service	10	3.00	30
			3777

3777 *units* ÷ 3178 (*originating calls*) = 1.19 *coefficient*

Toll Supplementary Peg Count

THE TOLL SUPPLEMENTARY peg count consists of an analysis of outward, inward, and through calls handled, plus the auxiliary work done in the office. This analysis is used to determine the work units per call. Items to be counted are taken from tickets written in the office taking the count, from meter readings and/or tally counts.

A toll supplementary count should be made for two normally busy days as outlined for local counts.

The coefficients shown on the toll peg count example form (*Exhibit II*) were developed by the company for which I work for use in our company exchanges in Illinois. Modified from basic Bell coefficients according to the percentage of Intra State and Inter State traffic handled in widely separated exchanges throughout the state they are used to compute weighted toll coefficients for exchanges ranging from 750 stations to approximately 5000 stations.

The weighted toll coefficient computed on the example form shows actual traffic for a common battery tributary exchange serving 1150 stations in a predominately agricultural area.

In taking a toll supplementary peg count the total number of tickets filed for the peg count days are sorted and counted first under the general headings and sub-headings indicated in the first ten items. The additional credit items are then obtained by checking the ticket entries for the various conditions listed.

TOLL SUPPLEMENTARY PEG COUNT

				LIST OF ITEMS	√	CALLS 1st Day	CALLS 2nd Day	CALLS Total	Coef.	Units
1	INITIAL ATTEMPTS	Person	0-30 Mi.	Ringdown		11	13	24	10.7	257
2				Dialed					9.6	
3			Ov. 30 Mi.	Ringdown		3	5	8	12.8	102
4				Dialed					11.7	
5		Station	0-30 Mi.	Ringdown		110	112	222	5.0	1110
6				Dialed — Paid Calls					2.9	
7				Dialed — Coin and Collect					3.9	
8			Ov. 30 Mi.	Ringdown		10	14	24	6.0	144
9				Dialed — Paid Calls					3.5	
10				Dialed — Coin and Collect					4.8	
11										
12	Total Calls					134	144	278		
13	SUBS. ATTEMPTS	Toll Line	Per.	Ringdown		3	6	9	12.7	114
14				Dialed					11.3	
15			Sta.	Ringdown		27	42	69	7.0	483
16				Dialed					5.1	
17		NC		Without Report to Customer		5	12	17	1.5	26
18				With Report to Customer		1	16	17	4.5	77
19				Circuit Request					9.5	
20										
21	MISCELLANEOUS			Built-up Connections — 1 Switch		18	46	64	3.1	198
22				" " — Multi-switch		2	3	5	4.9	25
23				Calls Filed Without Number		45	35	80	1.8	144
24				Calls With Coin Deposit		2	8	10	2.8	28
25				Collect Calls		6	9	15	2.5	38
26				T & C Quoted by Outward Operator		1	4	5	2.7	14
27				Messages With No Lamp Supervision		7	6	13	1.0	13
28				Recording Only		1	5	6	2.3	14
29				AG Requests Passed to TX Operator					5.1	
30				WH Reports		-	2	2	8.8	18
31				Reach Information For Number		13	9	22	4.3	95
32				Reach Rate and Route Operator					2.3	
33				Non-Ticketed Requests		12	3	15	3.2	48
34				A[illegible]x						
35										
36	INWARD			Answer — No Connection		29	40	69	1.2	83
37				Connection To Multiple — CB Lines		292	293	585	1.4	819
38				" " " — Mag. Lines		33	20	53	2.0	106
39				Connection Via C.C. — CB Lines					2.0	
40				" " " — Mag. Lines					2.6	
41				Connection Via Dial					1.9	
42				Transfer By Trunk					2.6	
43				Ad[illegible]						
44										
45	Through Calls					41	33	74	2.3	170
46	NCR Tickets Written								3.2	
47										
48	AUXILIARY			Rates or Routes — First Reference					1.4	
49				" " " — Rate and Route Guide					3.7	
50				Charges Quoted At R & R Position					10.3	
51				Message Tickets Rated		5	4	9	2.0	18
52										
53	Total Units					—	—	—	—	4144
54	Toll Coefficient					—	—	—	14.9	—

October 5 & 6, 1953 (DATES) Yourtown, U.S.A. (EXCHANGE)

EXHIBIT TWO — Toll Supplementary Peg Count

In determining whether the called place is within 30 miles of the office making the count, the points within a 30 mile radius may be taken from an authentic map upon which you have drawn a circle scaled to the map, with your office as the hub. In Illinois, standard toll rates provide a rate of 30 cents for the mileage step 26-30 miles. As a matter of convenience and simplification we list for each of the exchanges taking a count, the points to which the rate is 30 cents or less. If your rate tables are comparable, you may wish to use this plan.

Attempts — Toll calls are evaluated in terms of *attempts*. An attempt for all general purposes is the use of a toll line or an effort to secure a toll line to complete a call. *Initial* attempts represent the initial (first attempt) work done on tickets. The work of recording and making successive efforts to obtain a toll line during the first minute is counted as an initial attempt even though due to NC a circuit is not secured.

Subsequent attempts represent work done on delayed calls and are divided between NC and toll line attempts.

NC attempts are subsequent attempts that cannot be made because of an NC condition. Count the same whether encountered in your office or at an intermediate office.

Toll line attempts are subsequent attempts on which the toll line was secured and the call com-

Please Turn To Page 88

TELEPHONE REVIEW

By S. B. GREEN*

In the early days a man worked 10 hours a day for a buck-seventy-five, lugged crossarms up the pole and fitted them in the gain. There were some tall and honest tales of how many poles were set in a day and how many miles of wire were tied in.

I GOT INTO the telephone business more or less accidentally. I had finished high school and had been working around at anything that was offered. In the early part of 1901 I wasn't working. My father was a lodge brother and friend of the foreman of the construction gang of the Home Telephone Co. One day he asked the foreman if he could "*give that boy a job.*" The boss said "yes," and I started digging holes at $1.75 a day, working 10 hours, building toll and rural lines. This was long before a benevolent government thought up the 40-hour week, and most of the young fellows on the gang were anxious to become linemen and better themselves. So we spent many a noon hour and after supper hour practicing climbing poles and carrying crossarms up with us. We didn't have groundmen to wait on us and pull up the cross arms on a rope and tackle block. We just put them on our shoulder and lugged them up the pole and fitted them in the gain.

At that time, of course, the ordinary workman didn't know too much of what was going on in the industry from a business angle. But most of us knew where work was going on and if the job played out at one place, there was another opening at another place. This made for the development of a tribe of *boomer linemen*, who usually followed the seasons.

"A Full Days' Work"

ONE CHARACTERISTIC of the lineman in those days was his loyalty to his employer and devotion to the job. He tried to do a full day's work and everyone on the job was expected to keep up with the best man. There wasn't any slow-down to the pace of the slow man. There was a great deal of pride in doing a good job and men were proud of the amount of work they could turn out. There were some tall tales of how many poles were set in a day and how many miles of wire were tied in, and they weren't fabrications, either.

In a great many towns, especially in the Middle West where I started in the business, there were competing exchanges, the Bell Company owning one and the other operated by the "Home" company, as most Independents were then known. The linemen never went anywhere without a pair of connectors in their hip pockets and when Bell and Home men met up at night there was usually an argument which terminated in a fight and occasionally the boss had to get some of his men out of jail the next morning.

We were in a comparatively new industry. The people working at it

Mr. Green is president of the Ellijay (Ga.) Tel. Co. and secretary-treasurer of the Georgia Tel. Assoc.

were proud of their part in a rapidly expanding business. The attitude of service to the public was recognized and cultivated and many instances of service beyond the line of duty were recorded. Men would work in the roughest of weather. The ladies of the industry would brave the elements to reach their offices and stay on duty many long hours in an emergency.

Early Industry Statistics

IT SEEMS rather amazing to look back at the statistics of the telephone business in 1901 when I dug my first 5-foot hole. But the figures say there were then 1,801,000 telephones in service in the United States. No division between Bell and Independents is given but two years later, in 1903, there were 2,371,044 telephones — not quite double the 1901 figure, but an outstanding growth, nevertheless. Most of this growth was due to the increase of Independent exchanges and subscribers, but 44.6% of these were Independent — 1,053,866, to be exact.

There was some hot competition for business in those days and the Independent companies were pioneers in developing the rural areas and very small towns which the Bell people did not consider profitable. As a matter of fact, they were right, for the Independents provided service at ridiculously low rates and depreciation finally caught up with them. However, this low rate business was not exclusive to the Independents for whenever an Independent exchange was started in Bell territory, the accepted method of meeting the competition was by cutting rates and in many cases giving away the service.

In spite of this, pride of the home folks in their company usually resulted in the Home company having the most subscribers, with the Bell company's facilities being used for such long distance service as was available. Most business houses had to have two telephones which was expensive by the standards of the day, and unsatisfactory. One reason for the preference for the Independent service was the fact that the Independents usually had more modern equipment than the Bell, most exchanges of any size being common battery while the Bell stuck to magneto.

Early-Day Toll Service

BELL LONG DISTANCE service was not available to Independent exchanges in the early 1900's. Many Independent companies built toll lines between neighboring towns and formed quite a network of their own. Nearly every town was a switching point and there might be a half dozen switching centers in a 75-mile circuit. Nevertheless, these companies met the demand fairly well and their respective earnings were determined by a Toll Clearing House, usually operated in connection with the State Telephone Association.

Some of these toll clearing offices still function in states such as Iowa and Illinois — perhaps others. It might not be a bad idea to study the possibility of Independent toll networks again, especially if negotiations with the Bell system turn out like they did this past spring. Under present regulations such an Independent system would probably have to work in connection with Bell lines but we would not be in the position of "take it or else," as we were for the most part of this year.

As late as 1915, a conversation over 400 miles of line was quite an accomplishment. However, a year or so earlier, Michael Pupin devised a formula for a repeating coil that would build up voice currents at points where they had about faded away and send them along to the next coil at full volume. The Pupin coil made transcontinental conversations possible.

Also, about 1913, Bell and Independent interests reached an understanding, approved by the justice department, under which competing exchanges would be considered by one means or another and Bell long distance lines would be made accessible to Independent companies. One result of this was the elimination of most of the Independent long distance lines but from the standpoint of the public, telephone service was much improved and the public's approval was evidenced by the continued growth in the number of telephones in service.

IN THE EARLY DAYS the worker knew what was going on. If a job played out at one place, the linemen moved to another spot.

Early Consolidations

CONSOLIDATIONS of Independent and Bell exchanges were usually affected by the larger exchange buying out the smaller. The Independent exchange in a competitive town was usually the larger and purchases of Bell properties were often financed by giving the Bell people stock in the Independent company. In many cases, the Bell system acquired more stock in the local company, sometimes by purchasing stock offered for sale by other stockholders and in other cases purchasing new issues of securities.

Eventually, Bell interests controlled many Independent properties and a great many were incorporated into the local Bell system company. I believe there are still quite a few com-

panies with minority Bell stock ownership and there may be a few in which the Bell company holds a controlling interest but still operate as Independent. To the credit of the industry as a whole, it should be said that regardless of ownership, the service has continued to improve and expand. No one would want to operate a competitive property in this day of universal service.

Nevertheless, had there not been a change in the objectives of the Rural Electrification Administration's telephone program, we might have faced another competitive situation with the government financing the opposition or taking over the privately owned property in the area proposed to be served by an REA co-op. In my opinion, the stated objectives of the present administration are much more realistic and reasonable.

The telephone business got into the high-finance class along about 1926-27 when the country was bursting with money and people were hungry for stocks and bonds and not too particular about the security so long as they were printed on pretty paper. Brokers thought they had to meet the demand some way so they set out to organize holding companies which would buy any kind of a business and then sell stocks and bonds of the holding company which would own the business, whatever it might be.

Telephone companies were the logical choice of these promoters for they could point to the millions made by original AT&T owners and assure the prospective purchaser that he could do as well.

About that time, I was operating a good-sized property serving towns in Iowa and Illinois and a man whom I had known since school days came out from Chicago to see about buying the business. He was very frank about the whole matter. His firm had so many calls for stocks and bonds that they couldn't supply the demand without some promoting of their own. So they were buying telephone plants, ice plants, small power and water systems, cotton gins and anything else that would tend to build up the apparent interests of the holding company whose stocks and bonds they would sell.

Most of us are old enough to recall the big bust of 1929 in which so many of these financial dreams went on the rocks and the stockholders were washed out. However, the operating properties remained and in most cases were acquired by legitimate operators who made them successful businesses.

EARLY DAY operators often braved the elements to reach their offices and stayed on duty many long hours in an emergency.

I have mentioned the era of competition between Bell and Independent exchanges and speaking of this Iowa-Illinois property which my friend wanted to buy, calls to mind that the operation in the Iowa city was one of the last of competitive situations of any size.

I had worked as a lineman and foreman in competitive properties in the early days of the industry but this was my first experience in the management of a competitive property.

We ran into many interesting situations, including misrepresentation by the opposition, but again I have to pay tribute to the loyalty and devotion to the company of the employes. Every one of them had his eye out for every possible new customer and we were rather successful in building up the business so far as our finances would permit. As a matter of fact, we were making such inroads into the other company's business that they came around and made an extremely good offer for our property which we accepted.

The Future

NOW WE ARE getting into a situation where consolidation again appears to be the solution of some problem, principally financial. But this time the consolidation is not with a competing property but with neighboring exchanges so that the consolidated business will be big enough to finance the expansion and improvement demanded by customers. This situation brought the REA into the telephone financing field in an effort to ostensibly help the small company but the actual result is to almost require consolidation of several properties in order to provide enough equity to justify a loan. The small exchange owner who can't finance his own operations is thus faced with the alternative of being forced out of business.

When I started to make notes for this paper, I thought of the thousands of good people in the telephone business and how much they have meant to the development of American telephone service.

Anyone brought up in the tradition of the American telephone industry cringes with dismay when he views the scope of the industry in foreign nations where it is operated under government management. Our pioneers in the art would turn over in their graves should we lose private ownership of the business. Government regulation, to be sure, but certainly not government ownership.

I feel that it is important that workers in the telephone industry be informed on the basic principles of the business and kept in touch with the latest developments in the art. Fair wages and reasonable working conditions with chance of advancement in position or pay are essentials in maintaining the loyalty and interest of employes. Further, I think that acquaintance with other people in the business is of great value and in this respect, our associations can be of considerable assistance by promoting district or group meetings where people in neighboring exchanges can meet one another and exchange experiences.

Independent telephone people should be acquainted with Bell people and with the scope of the operations

A GREAT NEW GLO-DOME TRADE MARK "PACKAGE"

NOW AVAILABLE!

—a new GLO-DOME "kit" consisting of GLO-DOME*, GLO-CEILING* and Ripley LIGHT WATCHMAN. A single 32-watt fluorescent lamp lights interior, exterior and dome—provides the most attractive outdoor booth facility known.

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of that system and Bell people should know about their Independent neighbors.

Not long ago, a young man employed by the New York Bell Telephone Co. in New York as an installer and repair man was in my office. Until he came to Georgia on a visit he had never heard of such a thing as an Independent telephone company. I told him something of the history and scope of Independent telephony and suggested that he subscribe to the trade magazines which publish news of the entire industry. He professed great interest and I hope he spread the news among his fellow workers.

Being composed of so many separate units, the Independent telephone industry has done little to publicize itself but I am happy to see several state associations adopting publicity programs which will let people know about the "biggest small business in the United States," as it has been termed by the *Wall Street Journal*.

> ***"As the distaff side comes more and more into its own in the government, old-time politicians may view the trend with some alarm. We don't blame them for that. Many of them will have to buckle down and earn their government keep more convincingly, or a horde of determined, hard-working women may eventually give the Capitol a clean sweep and take over."—Oakland (Calif.) California Voice.***

After all, while the telephone business makes use of mechanical, electric and electronic gadgets, many of them doing things that people used to do, we still depend upon people for successful operation of all these devices. There is a community of interest among telephone people which tends to build up the loyalty to the business itself, aside from any particular company, which I think has always existed and now, more than ever, is needed. I have full confidence in the integrity, loyalty and patriotism of the people of the United States who are responsible for the wide-spread and splendid telephone service in this country, be they owners or employes. —THE END.

Court and Commission Activities

Mountain States requests new rates . . . Higher Arkansas rates cover added wage costs . . . Pacific Tel. hearings continue into Feb. . . . Rates approved for Albany (Ill.) Tel. Co. . . . Missouri Tel. Co. to provide video service for TV station.

Mt. States Requests Fair Rate of Return

LAST MONTH *The Mountain States Tel. & Tel. Co.* asked the Arizona Corporation Commission for a hearing to determine additional rates needed to meet a fair return on the fair value of its property. Arizona General Manager L. V. Smith stressed that the company is now carrying on the largest construction program in its history in Arizona.

The commission last considered the company's earnings requirements on the level of operations existing in the latter part of 1950 and early 1951. Since then, two wage increases have been put into effect. Each telephone installed in the state today adds about $400 to investment, compared with the intrastate average of $217 in 1950.

Higher Arkansas Rates To Cover Added Wage Costs

A REQUEST of the *Southwestern Bell Tel. Co.* for higher rates to recover the added $30,000 monthly intrastate expense resulting from a wage contract negotiated in August has been filed with the Arkansas Public Service Commission.

Arkansas General Manager Warren E. Bray said "There will be no great rate increase, as no change is proposed in the basic monthly rates for local exchange service. Instead, we are asking for authorization to recover this amount by making adjustments on certain miscellaneous items."

Proposed adjustments cover service connection, move, and change charges, general tariff items such as auxiliary signaling apparatus, switching equipment, etc., and a five-cent revision for some daytime station-to-station intrastate toll calls. Mr. Bray said that even with the higher rates, it will be "quite difficult" to earn the 6 per cent return in Arkansas to which the commission said the company is entitled.

Pacific Bell Hearings To Continue Into February

THE HOPE THAT hearings on the rate increase application of the *Pacific Tel. & Tel. Co.* in California will end by February was expressed by Commissioner Peter E. Mitchell, presiding over the sessions, as they resumed last month. Commissioner Mitchell, who denied the motion of the city of San Francisco to dismiss the application at the outset of the resumed hearings, set 22 future hearing dates, extending into February.

Effects of major changes experienced by Pacific Tel. in its California operations since initial hearings on the 'basic rate application last April were presented last month. Important interim changes listed included the estimated cost of 1953 wage increases and changes in working conditions, cost of revised settlements with Independents, and the effect of reduced depreciation charges.

Amended since it was originally submitted more than a year ago, Pacific Tel. & Tel.'s application now seeks rate increases averaging about $1.20 per telephone per month in the state.

Direct testimony was offered by Chief Statistician A. E. Ellison, Assistant Comptroller C. S. Mason, Assistant Vice President J. M. Riddle, and General Commercial Engineer Ward C. Schweizer.

First company witness to be cross-examined was F. D. Chutter, utility expert of the Massachusetts Investment Trust of Boston, who had offered direct testimony on inadequacy of a 5-½ or 6 per cent rate of return. Mr. Chutter said that telephone securities should pay a higher return than electric companies' issues, because the risk is greater in the telephone field. Also questioned was Allen D. Harper, vice president of the Pacific Mutual Life Insurance Co., who said that in the long run consumer and investor have common interests.

New Rates Approved For Albany (Ill.) Tel. Co.

A RATE INCREASE, effective Dec. 1, 1953 was granted to the *Albany (Ill.) Tel. Co.* last month by the Illinois Commerce Commission, according to Karl Yost, attorney for the company.

In the letter notifying the company of the raise from Thomas Graham,

ICC secretary, the following rates were listed:

Business individual, $30 to $36 annually; residential individual, $24 to $30; 4-party line, $21 to $27; rural lines, $21 to $27. In addition, free service which had been provided from Albany to Erie now costs 10 cents and the cost of telephoning from Albany to Fulton is 10 cents instead of 5 cents.

The increase in revenue will be used for improvements in the company's outside physical plant, with a view toward possibly installing dial service in the future.

There are 533 stations in the Albany network which includes the village of Albany property and that territory which adjoins the Morrison system to the north and east and the Crescent company to the south.

President of the company is Charles Sharer; secretary is D. V. Potter and the manager is Hurson DeNolf.

Michigan Independent Requests Rate Boost

PERMISSION To increase rates has been asked of the Michigan Public Service Commission by the *Allen (Mich.) Mutual Tel. Co.*

The request is based on increased costs of operations. At present the company charges $2.50 per month for business telephones, $2.15 for 1-party residential service and $1.55 for multiple-party and rural-party line service.

Missouri Tel. To Provide Video Service for TV Station

THE MISSOURI Tel. Co., Columbia, Mo., last month received construction authority from FCC to establish a microwave system between Prairie Home Mo., and Columbia. The facilities will provide video service to television station KOMU in Columbia.

New Rates Approved For Henderson, Nev.

ROBERT A. ALLEN, chairman of the Nevada Public Service Commission announced that the commission has approved a rate schedule as proposed by the *Henderson (Nev.) Tel. Co.*

The commission set the company's rate base at $333,352, and annual net income at $22,667.18. The net income will give the company an annual rate of return of 6.8 per cent on plant investment.

The company had submitted a rate base of $420,228.56, but the commission ruled that the original telephone system, in use at the Basic Magnesium plant, had cost the present operators only $15,000. The commission thus deducted $86,876.56 from the company's claim of investment.

The Henderson telephone system converted to dial operation Dec. 15, 1953.

New York Tel. Seeks Increased Rates

NEW YORK TEL. CO. asked the New York Public Service Commission last month for increases of 2-½ cents a day in the rate for most residence main telephones and 7 cents per day for most business and main telephones. The company also requested an increase of ¼ cents for additional local message units. Certain toll rates would go up to 5 cents and there would be increases in some miscellaneous services.

Over-all, the increase amounts to 10 per cent of revenues and is estimated to involve $68,850,000 a year.

Keith S. McHugh, president of the company, gave two principal reasons for the application. Costs are rising faster than revenues, he said, and very large capital additions for improvement and expansion at high post-war prices for plant and equipment are a drain on the rate of earnings.

As a result, he added, the company's earnings are too low and are expected to drop still further. The best in telephone service, whether in normal times or in emergencies, he declared, can only be given if the company is strong.

"The plain fact is that inflation hasn't stopped for us," he said.

"Our costs have gone up like all others, but the prices we charge have not kept pace. New York State has had the smallest increase in telephone rates of any State. It amounts to only 16 per cent, compared to a rise of 92 per cent in the cost of living."

In all, the company said, its income would be increased by approximately 10 per cent if the PSC accepted the new rate schedule. A spokesman said the telephone company's annual gross revenue was about $688,500,000.

In 1950, the PSC granted the telephone company an increase amounting to approximately 11 per cent of its annual revenue, and in 1952 approved another increase of approximately 5 per cent.

Mr. McHugh asserted that the company's equipment and operating costs were up. The firm's "earnings per dollar invested have dropped and will continue to drop unless our rates are increased," Mr. McHugh said.

He reported the company would need to raise about $100,000,000 a year in new capital to finance its construction program. "We can get this new money only from people with savings," he declared, and indicated that the rate increases would help encourage such investment.

Ohio Bell Asks Rate Boosts To Increase Gross By 5%

RATE INCREASES estimated to add 5 per cent to the gross revenues of the *Ohio Bell Tel. Co.*, totaling an estimated $8,913,000 a year before taxes, were asked last month in a filing with the Ohio Public Utilities Commission.

Ohio Bell President John A. Greene said the average increase requested for residence service is less than a cent a day, and under four cents daily for business service.

Mr. Greene said that Ohio Bell's earnings would still be less than 6 per cent on the value of its property, if the proposed rates are approved. After taxes, Ohio Bell would net about $4,116,000 from the requested rate boost.

The Ohio Bell President said, "We are asking only for what is needed for the company to continue to expand and improve the service, and to cover increases in costs. Demand for service is still heavy. Because of this, the company has had to keep its construction program going at the current rate of about $50,000,000 a year. Present indications are that we will continue to require large sums to meet the demand and bring new developments and improvements to our customers."

He added, "During the past year, the company's rising costs, including many items of materials and supplies, higher building costs, and increased wages, have been a matter of growing concern. The company is now earning less than 5 per cent."

It was brought out that Ohio Bell has added $295,000,000 to its plant in service from 1946 through 1952. The expansion program for 1953 and 1954 will add another $102,000,000, and every indication is that large ad-

ditions will be needed in the years to come, the company added.

Ohio Bell pointed out that the element of risk in the business has been increasing steadily, as more and more revenues are coming from sources more vulnerable to an economic downswing. In meeting the heavy demand for residence service, Ohio Bell has run the risk of overextending its plant, the company emphasized.

Sought were increased basic residence and business rates, station-to-station intrastate long-distance charges, and higher unit rates for additional messages. No rate revisions for miscellaneous items and other services were included in the filing.

Oklahoma Independent Seeks Rate Increase

APPLICATION TO convert to a dial system and increase rates was made to the Oklahoma Corporation Commission last month by the *Beggs (Okla.) Tel. Co.*

Forrest Hand, manager, asked for an immediate hearing on the application. He proposed to increase one-party residential charges from $1.75 to $2.75 per month, and one-party business from $2.75 to $3.75 per month.

New Rates Approved For Jefferson, So. Dak.

THE SOUTH DAKOTA Public Utilities Commission approved new telephone rates for the *Jefferson (S.D.) Tel. Co.* recently.

The rates include $4.00 for business and $3.00 for resident single party telephone, $2.50 for resident two-party and $3.25 for rural residence.

Utah Commission OK's Henderson Rate Hike

THE UTAH Public Service Commission last month approved the request of *Henderson Tel. Co.* for service charge increases averaging $1.00 per month for residence telephones and $2.00 for business telephones.

C & P Tel. Co. of W. Va. Seeks Rate Adjustment

HEARINGS ON the rate increase application of the *Chesapeake & Potomac Tel Co. of West Virginia* have been adjourned until Feb. 2, after an all-day session in Dec. at which company witnesses appeared to outline the basis for C&P's application.

In addition to cross-examination at the Feb. session, C&P has been asked to offer exhibits regarding the number of held orders for upgraded service, rural zone mileage charges, and the possibility of establishing a 10-cent coin box rate.

Included in the hearing record was a statement of the West Virginia Farm Bureau, with more than 10,000 members, stating its support of the company's application, but urging abolition of mileage charges on rural service. A total of 12 letters from individuals and organizations opposing the rate boost were received by the commission.

C & P Vice President C. H. Johnson told the commission the company's "big problem" is clearing the applications for service in the rural areas of the state. About 80 per cent of West Virginia's 12,500 held orders "require costly plant additions" in rural parts of the state, he brought out. The company is asking for rate increases totaling about $2,250,000 a year.

Recent Sales & Purchases

As 1953 ENDED, sales of Independent operating companies continued at a fast pace with regulatory commissions finding proposed sales definitely in the public's interest. Press-time roundup of recent actions showed following:

(1) *Southwestern Bell Tel. Co.* is seeking public interest certificate from FCC on its plans to acquire *Aledo (Texas) Tel. Co.* J. B. McDuff has owned this 225-subscriber Independent since Oct., 1951. The company has no toll-lines and currently lists over 200 held orders which cannot be served through existing facilities. Purchase price for telephone plant and property, including rural lines will be about $17,500.

(2) Indiana Public Service Commission approved plans of *Indiana Bell Tel. Co.* to purchase: (a) *Taylorsville Tel. Co.*, serving about 250 stations in four communities; (b) three exchanges of *Hope Tel. Co.* which serves about 770 stations in three towns; and the *Pikes Peak Tel. Co.* which has 180 stations.

(3) Pennsylvania Public Service Commission has approved merger of *Southern Tel. & Tel. Co.*, Quarryville; *Wisconisco Tel. & Tel. Co.*, Elizabethville; and *Blue Mountain Tel. Co.*, Bangor, into one firm to be known as *Community Tel. Co. of Bangor.*

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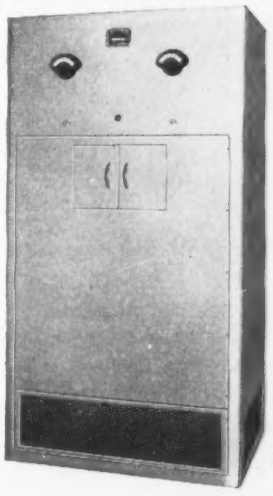

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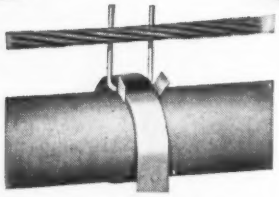
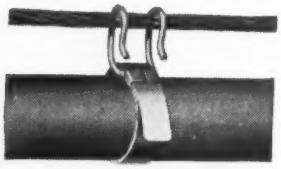


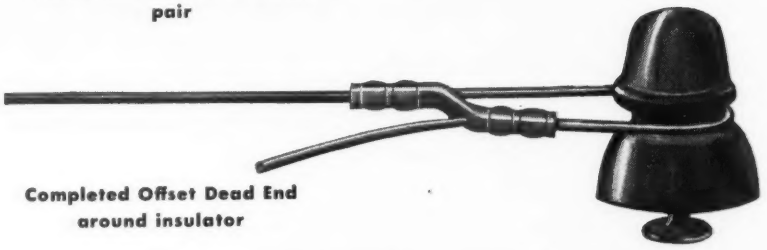
National Adjust-A-Strap, partially installed. Notice split buckle to facilitate wrapping zinc strap around cable



National Zinc-Wrap Partially installed

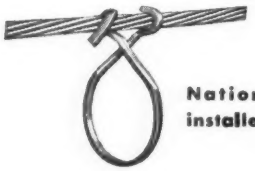
NICOPRESS line wire Splicing Sleeve

NICOPRESS splices on twisted pair



Completed Offset Dead End around insulator

NICOPRESS Reducing Sleeve splice on wires of different sizes (before compressing)



National cable ring installed on messenger

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NICOTAP—Split feature permits easy installation on line wire.

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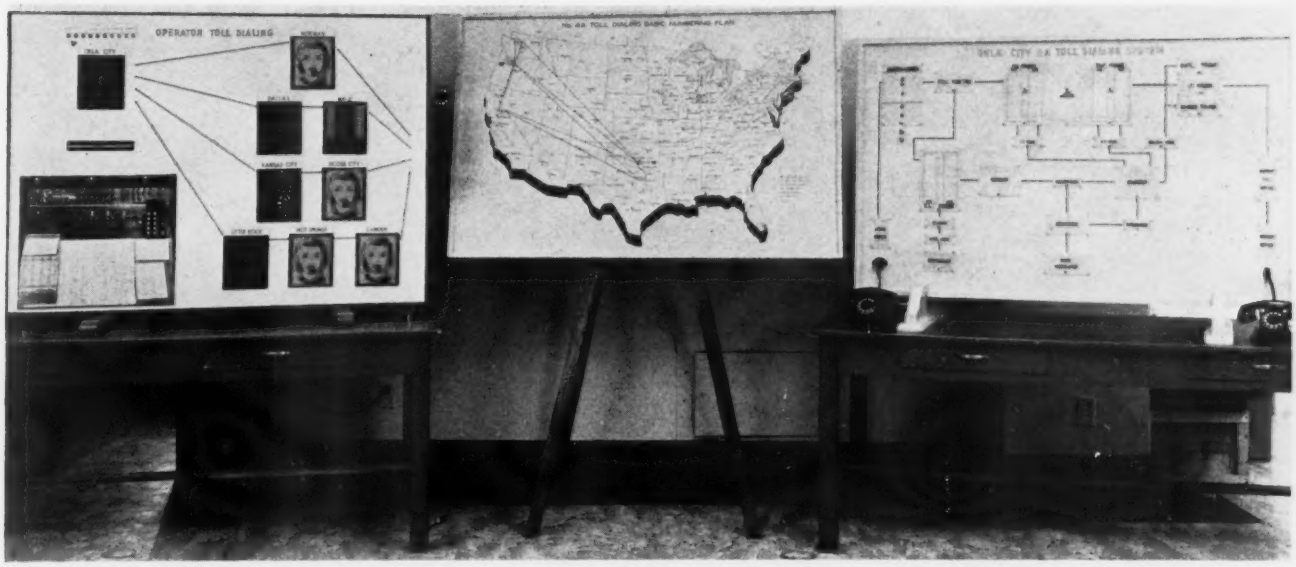


MEAD YOUNG of the Southwestern Bell Tel. Co., used these charts to demonstrate Operator Toll Dialing at Oklahoma convention.

State Association Activities

R. E. HARRIS elected president of Oklahoma Telephone Association . . . BLAIR C. STONE heads Florida Telephone Association . . . W. F. THOMAS named president Alabama-Mississippi Independent Telephone Association . . . Wisconsin group holds Area Clinics . . . Indiana's district meetings set attendance records . . . 750 attend 30th session of AAR Section.

Oklahoma Independents Hold Annual Meeting

BY HUGH STRAUGHN,
Sec., Oklahoma Tel. Assoc.

THE TELEPHONE people of Oklahoma, and many visitors from surrounding states, turned out in volume for a very successful annual convention in Oklahoma City, November 19 and 20. The attendance exceeded that of any previous year.

"Assistance for Small Companies" was emphasized throughout the meeting and practical applications of this theme were carried out in the talks and papers presented.

President A. L. McFadden reviewed some of the association's activities for the past year and the results were quite gratifying. For example, rate increases totalling $54,223.00 per year were obtained for some 27 exchanges during 1953. This makes a total of $124,442 for 64 exchanges over the past two-year period and these figures do not include rate cases involving the four large group companies operating in the state.

A satisfying number of dial conversions were completed during the year and here are an even greater number under construction. Others are undergoing engineering and loan studies which bid fair to set a record for improvement programs for the ensuing year.

George L. Verity, a prominent Oklahoma City Attorney and rate specialist spoke on "Attitudes Toward Rate Changes." He stressed the need for accurate accounting records in rate cases and gave much valuable advice on how to plan and execute a rate case.

"Loans for Small Companies" was the subject of a talk presented by P. J. Lucier, vice-president of Stromberg-Carlson Credit Corporation.

Examining some of the things that have to be done to arrange financing and the means available to small companies to get the help they need, Mr. Lucier stated there are three things the company owner must know: — "What have I got? — What do I need? — How can I pay it back?"

"For a lender," he said, "it's certainly as important — and in more cases than not *more* important — to determine what you have on your *books* rather than in plant itself. A fine plant that has no dollar value on your books doesn't mean a thing to a banker and you can't borrow a penny on it. If you think that system is screwy don't try to fight it. Believe me, it's bigger than both of us!

"Unfortunately, when we're making a survey of a small company who has applied for a loan we're most likely to find one of two conditions as far as records are concerned: none at all or terrible ones. You've got to *get and to maintain* an adequate set of accounting records. If you've heard this a thousand times it's only because it's true. The chances are only one in a thousand that the per-

son or firm who lends you money will live in your town and there isn't any way except through adequate records for someone a hundred or a thousand miles away to make a decision except on the figures you give him. And they can't, of course, come out of thin air."

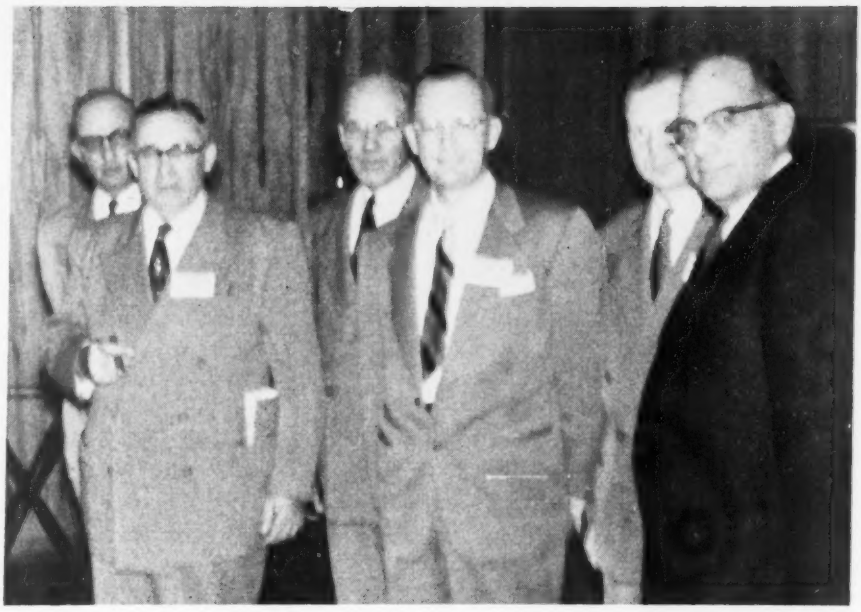
Discussing adequate records, Mr. Lucier said that, "records may take a detailed inventory of plant."

"Certainly," he said, "before any book adjustments can be made you — and your accountant — should consult with and receive the permission of the commission or its staff. Far more often than not small companies have more value in plant than the books reflect and the earnings on this 'lost value' will more than offset accounting costs. The expense of accounting and other professional fees are, of course, legitimate items of expense in your rate base and I can assure you commissions in general are more than glad to allow such expenses.

"Also in the category of *'what have I got'* comes your real estate abstracts and franchises, articles of incorporation, by-laws and insurance policies — in short all of the legal documents to prove you are properly organized and do business and have the papers showing clear title. All these things should be handy at a moment's notice and will be required for any long term financing, but most companies wait until they are requested by the lender and then can't understand what causes the months of delay. We have found many corporate charters which have expired years before and real estate abstracts which take months to clear. In one case a company found that a next door neighbor had a mortgage on the company's central office building.

Why not attend to these matters by going to an attorney and getting them straightened out as part of your preparation for borrowing. It will certainly cost less to do it now than later. Have plenty of copies on hand to furnish the lender. It will be evidence to him that you have an efficiently run business. If you are not now incorporated, it would be wise to do so — all long term lenders require it as do most commercial banks. There are many advantages and both your attorney and accountant can outline these to you.

"The next step is to determine what you need — first in terms of plant and then, for the lender, in dollars. You will need engineering assistance for this and it's available — from your association, from the Bell, from manufacturers or a combination. What is it going to take to serve your area — how many customers will you have when the program is done 18 months or two years from now? If you can list the items any manufacturer will be glad to price them for you. And it's far better to estimate too high than too low. The chronic trouble of all borrowers in the last few years has been to underestimate the demand for service and the cost of supplying it. Make a map of your territory and go over it line by line and house by house. Don't forget to provide for outside labor if you are going to need the help of a contractor. Incidentally, if you do your own construction you can figure a minimum labor cost of about 50% to 60% of the cost of materials. If it's to be contracted labor may well be as much as 100% of the cost of materials."



Members of this Oklahoma Convention group are (l. to r.) M. E. BARNES, district manager, Southwestern States Tel. Co., Frederick; F. E. MESSECAR, district manager, Oklahoma Tel. Co., Broken Arrow; S. C. RICH, connecting company agent, Southwestern Bell Tel. Co., Oklahoma City; JAS. M. CAMPBELL, general connecting company agent, Southwestern Bell Tel. Co., St. Louis; BERNARD TRUMBULL, AT&T Co., New York City; and E. H. DANNER, president, Texas Tel. Co., Sherman, Texas.

Turning to the size of the loan, Mr. Lucier emphasized that unless some very unusual high revenue situation exists (and it usually does not) it is difficult to pay back in a 20-year period more than $150 of the loan per station, in service at the time the program is complete.

"Put it another way," he said, "you can't borrow much more than two times your present net plant value minus any present debt you owe. These figures are generally high and would apply almost solely to manufacturer loans. Regular lending agencies won't go that high. When figuring on what you need to borrow, don't forget that depreciation dollars are available during the life of the program and also earnings. If you aren't earning anything, then get the rates you need *now* to give you a fair return on what you have in plant. No one wants to make a loan to a losing business and once it's lost, it's gone forever. Of course, you need accounting records before you know whether or not you're losing money and you would be surprised at how many companies are losing and don't know it.

"If you have on hand all of the information I have just mentioned you may be sure that any lender can give you a 'yea' or 'no' decision on how much money he is willing to lend within a matter of days. In fact, I'm sure you'll have some of the manufacturers knocking at your door. It might well be that your requirements are more than the equity that you have or can support. Don't let that discourage you — it may mean a year's wait or perhaps you'll have to sell some stock. There are many

Florida Independents and their guests photographed at annual Florida convention.

solutions but once you know exactly what is required you can certainly build toward it. Make sure that every dollar you spend in plant is for something that will be there when you complete your conversion. Second hand or obsolete equipment is no bargain at any price if the dollars you spend for it must be thrown away in a year or two."

The unfair tax advantage enjoyed by co-operatives and some other types of concerns was thoroughly covered in a talk on "Our Income Tax-Free Competitors" by Jos. F. Leopold, staff speaker for the National Tax Equality Association. Telephone people are quite generally acquainted with Mr. Leopold as he has appeared before many telephone convention groups. His timely talk should prompt immediate action by his hearers.

A presentation of the Small Company Assistance program was made by Hugh Straughn, Secretary of Oklahoma Telephone Association. By means of projected charts he outlined the problems confronting small companies and explained just how and where help could be obtained in their solution.

The plant portion of the program was conducted by Marvin Osborne, assistant connecting company agent, Southwestern Bell Telephone Co., who has served previously as plant man for both Independent and Bell companies. His demonstration of the proper use of an ohmmeter and methods of correcting various transmission difficulties was well received.

A large display board and various types of test equipment were used by him to impress the importance of good construction and proper maintenance of plant. Actual demonstrations of the effect of "high-joints" etc., on transmission were carried out. Many later sought his counsel, in smaller group meetings, in the solution of their individual plant problems.

On Friday morning, elaborate display boards were used by Mead Young of the Southwestern Bell Telephone Co. in demonstrating the features of operator toll dialing. The extent, to which the inauguration of this new service will affect small exchanges, was brought to the attention of Independent telephone people in a very interesting manner. In connection with this demonstration, R. Burns gave a traffic presentation with the assistance of three young ladies from his Traffic Department. Improved methods of handling calls for speedier action were portrayed very effectively.

The entertainment features consisted of the popular "Hospitality Hour" sponsored by the manufacturers and suppliers on the evening of the 19th followed by a banquet. A musical program was enjoyed and Dr. Jack E. Douglas, Professor of Speech at the University of Oklahoma wound up the evening with an after dinner speech entitled "Company Coming." E. H. Danner, vice president, Oklahoma Telephone Co., did a masterful job as toastmaster at the banquet.

The three director vacancies were supplied as follows: J. W. Holt, Stilwell, re-elected; F. F. Wright, Kingfisher, replacing C. C. Browne; and C. A. Blakeney, Waynoka, replacing V. S. Reynolds.

At the Board of Directors meeting following the close of the convention session, new officers were chosen as follows: President — R. E. Harris, Purcell; 1st Vice President, F. E. Messecar, Broken Arrow; 2nd Vice President, D. R. Majors, Carmen; Secretary, Hugh D. Straughn, Oklahoma City; and Treasurer, S. C. Rich, Oklahoma City.

Blair C. Stone Heads Florida Telephone Assoc.

MORE THAN 300 Independents registered for the 1953 annual convention of Florida Telephone Association. Meeting at the Sheraton Beach Hotel, the delegates heard lead-off speaker George D. Garner, vice president of the personnel department, Southern Bell Telephone & Telegraph Co., Atlanta, Ga., discuss — "What Employes Want From Their Jobs"

Recognizing that motives differ among individual employes and to a certain extent among employes in different industries, Mr. Garner stated that employes want — (1) personal security, (2) recognition, (3) self-respect, and (4) economic security.

"He wants good pay and reasonable protection against loss of employment or pay," Mr. Garner said. "He wants the opportunity of advancement and he wants reasonable assurance that the job will continue to be his, provided he meets the requirements of employment."

Discussing the four principal categories of the employe's desires, Mr. Garner emphasized that the desire for recognition or to get ahead, and to stay ahead is ingrained to a greater or lesser degree in almost all employes who are seriously engaged in the business of making a living.

"Certainly," he said, "this desire to get ahead is one of the things that

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Officers of the Florida Telephone Association (l. to r.) — J. N. JOHNSON, first vice pres.; BLAIR C. STONE, pres.; JOSEPHINE POPPLETON, sec-treas.; and CARL D. BROREIN, JR., second vice pres.

has made our country great. It is the dynamo that charged the pioneers who settled and built this country and those who have played a great part in its growth and development ever since. This desire is made up of many things: — of aspiration to excel, to make a worth-while contribution, to become an important part of the company, to provide the good things of life for families, and to become a valuable member of the community. All of us will agree that these are commendable desires — motivations that develop the type of employes that contribute richly to the success of the enterprise and to the well being of the community."

Emphasizing that the policy and procedure for enabling employes to attain their rightful desires from employment must stem from top management, Mr. Garner said that top management must appreciate the mutual advantage to the business and the employes, of employment that provides not only a fair market payment in money, but also offers to deserving people those conditions of work that bring a real measure of job pride and satisfaction.

"But equally important," he said, "is that the methods to gain this objective be understood, accepted and followed by all levels of management. Most important, the degree to which management measures up to its policies depends upon the day to day relationship between first line supervisors and the employes who produce our products or services."

Other speakers at the opening session were Joseph F. Leopold, of the National Tax Equality Association, Dallas, Texas, whose topic was "Our Income Tax-Free Competitors"; and William C. Henry, president and general manager, Northern Ohio Telephone Co., Bellevue, whose topic was "It's Still Uphill."

Two conference sessions highlighted activities of the convention's second day. Louis F. Seaweel, traffic and commercial superintendent, Inter-County Telephone & Telegraph Co., presided at the traffic conference and H. J. Bishop, Jr., of the Starke Telephone Co., directed a joint commercial and plant department conference.

Speakers at the traffic conference were: Mrs. Frances Hill, Southern Bell, on "New WH Report Procedures"; selected Florida Independent telephone traffic heads, on "Treating Today's Traffic Requirements"; and Leila Reid, Southern Bell, who presented a demonstration and talk on "Is Your Voice Really You?"

Speakers at the commercial and plant conference were: John O. Riggs, outside plant supervisor, Florida Telephone Corp., Ocala, on "Outside Plant Maintenances," and Mrs. Viola Young, Peninsular Telephone Co., St. Petersburg, on "Commercial Problems, Yours and Mine."

The final convention speaker was C. Farris Bryant who discussed "Public Relations For Private Persons."

Officers elected during the 1953 convention are: President, Blair C. Stone, Southeastern Telephone Co., Tallahassee; 1st Vice President, J. N. Johnson, Inter County Tel. & Tel. Co., Ft. Myers; 2nd Vice President, Carl D. Brorein, Jr., Peninsular Telephone

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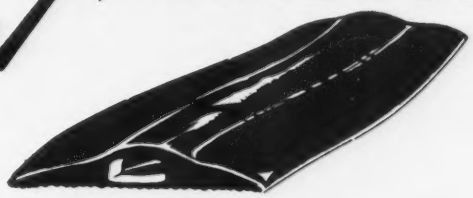

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W. F. Thomas Heads Ala.-Miss. Association

BY BILL CORMAN,
Sec., Ala.-Miss. Tel. Assoc.

MEETING FOR the first time in its 28-year history in Birmingham, the Alabama-Mississippi Independent Telephone Association had a record-breaking attendance at its annual convention at the Thomas Jefferson Hotel. 186 delegates registered. The registration compared with previous highs in 1951 of 151. 110 in 1949,

77 in 1947, and 58 in 1944. Nearly 200 attended the annual banquet to hear John Temple Graves, columnist for the Birmingham Post-Herald, speak on "The South In The Picture." Mr. Gaves eloquently described the three revolutions that are taking place in the South—Industrial, Agricultural and Political.

Mr. Graves' address followed several other excellent speeches which were heard earlier in the day. Ted D. Talmage, Kellogg Switchboard & Supply Company, Chicago, addressed the delegates on the subject of "Training Telephone Technicians." He pointed out the shortage of trained workers, and stated—"This situation will get worse before it gets better." He advised, where possible, that companies should set up training programs for their employes and develop their own technicians. Mr. Talmage also described the Central Office training schools that are operated by several of the manufacturers.

E. E. Weitzell, chief of the Telephone Operating and Loan Division of REA, described the objectives of the REA in the financing of telephone property, and referred extensively to the newer developments in the REA telephone lending program, most of which are designed to reduce per-station costs of telephone development. He said, "In every way it shall be our aim to take advantage of all possibilities to reduce construction costs to a minimum. Small rural telephone companies and cooperatives cannot succeed through any other procedure."

Clyde S. Bailey, executive vice president of the USITA, personally extended the greetings of the national association to the delegates. He pointed to many items with which the national association is concerned; the possibility of an increase in the Minimum Wage law; the development of a pension plan (details of which may be had by writing to the USITA in Washington, D. C.); and the national association's work on EAS (Extended Area Service) agreements and in this connection he pointed out that a policy has been developed and reduced to written form for those desiring to use or study it. He also referred to the recent USITA-Bell negotiations concerning an increase in the toll settlement agreement, mentioned the dissatisfaction of some companies to the present contract, and stated that USITA is pursuing this subject on a continuing basis.

Sam Green, secretary of the Georgia Telephone Association, was highly entertaining and instructive with his review and reminiscences of earlier days in the telephone business.

Fred S. McGehee, West Florida Telephone Co., Marianna, Fla., talked on the subject of "Microfilming Toll Tickets." He illustrated his talk with equipment and procedures used by his company.

Officers and directors for the Association for the coming year are:

President, W. F. Thomas, Elmore Coosa Telephone Co., Eclectic, Ala.; First Vice-President and Secy-Treas., W. F. Corman, Southland Telephone Co., Atmore, Ala.; Second Vice-President, R. A. Bailey, Leeds Telephone Co., Leeds, Ala.; Third Vice-Presi-

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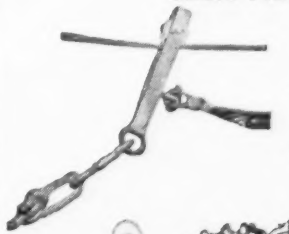
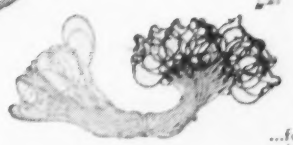


Cable Placing Shoe
is used ahead of spinner to raise cable from reel to strand in placing and spinning cable. Also used stationary at pole when placing with rings.



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Over 100 telephone people from Northwestern Wisconsin were on hand for the Wisconsin State Tel. Association's Cumberland Area Meeting. —(Photo by T. M. SEGERSON, Gen. Tel. of Wis.)

dent, Earl McDonald, Ackerman Telephone Co., Ackerman, Miss.; Honorable Vice-President J. L. Kirk, Moultrie, Ga.; and Honorable Vice-President E. C. Warner, Cookeville, Tenn.

Directors are: Minor Corman, Southland Telephone Co., Atmore, Ala.; R. C. Corr, Oheonta Telephone Co., Oneonta, Ala.; T. C. Crutchfield, Camden Telephone Co., Camden, Ala.; W. J. Holladay, Alabama Telephone Co., Fayette, Ala.; M. M. Kennedy, Monroeville Telephone Co., Monroeville, Ala.; C. E. Kirk, United Telephone & Telegraph Co., Dothan, Ala.; J. A. Miller, Jr., Interstate Telephone Co., Fruitdale, Ala.; DeForest Nolen, Tri-County Telephone Co., Ashland, Ala.; R. H. Robertson, Bayou Telephone Co., Bayou La-Batre, Ala.; Ward H. Snook, Gulf Telephone Co., Foley, Ala.; H. W. Vaughan, Chickamauga Telephone Co., Chickamauga, Ga.; L. G. Vaughan, Florala Telephone Co. Florala, Ala.; M. G. Weaver, Peoples Telephone Co., Collinsville, Ala.

During the convention the Southern Bell Telephone & Telegraph Co. put on a lecture and demonstration of "Protection against Power and Lightning." Clearly explained and graphically demonstrated with actual equipment were the latest techniques on protection. Accidents to persons were reproduced to show why they happened and how they could be prevented. Fuses were inserted in circuits and then blown up to show how high voltages reacted on well-grounded and poorly-grounded station apparatus. Interest in the demonstration was evidenced by the many questions asked during the time it was in progress and afterward.

The convention passed a resolution expressing its sorrow over the death of James N. Cox of Cookville, Tenn. long one of the leaders in the telephone industry.

At a closing meeting, the directors decided to hold the next regular convention of the Association on the dates selected several years ago—the second Monday and Tuesday of November. In 1954 these days fall on Nov. 8 and 9. The place of the meeting will be the Thomas Jefferson Hotel in Birmingham.—THE END.

Area Clinic Sessions Prove Successful in Wisconsin

By RAY RIORDAN,
Sec., Wis. State Tel. Assn.

THE AREA CLINIC program sponsored by the Wisconsin State Telephone Association has gained favor among its members, if response to the recent Fall sessions held at Cumberland and Neillsville can be accepted as a criterion.

The Cumberland meeting was conducted by J. F. Benjamin, chairman of the Association's Northwest Area, and a member of its board of directors. Benjamin, president of the Cumberland Telephone Co., had recently cut his 1100 station exchange to dial and thus made the day a joint Open House-Area Clinic affair, acting as host to 106 telephone people representing 44 companies operating in Wisconsin.

Central Area Chairman, Herb M. Smith, secretary of the Badger State Telephone & Telegraph Co., made the arrangements at Neillsville and while attendance did not reach the figure set at Cumberland the 26 companies sending people represented an excellent percentage of those operating in the Central Area.

Features of both programs were similar in many respects. Local bankers participated, giving valued hints in ways and means of impressing financiers when the need for money arises. Two associate members of the Telephone Association, H. E. Siepert, Beloit, and A. G. Kiesling, Madison, both Certified Public Accountants and specialists in utility matters, emphasized the necessity for records if and when financial institutions are approached for assistance by companies desiring to expand and improve.

Both sessions awarded attention to non-metallic sheated cable with A. W. Raffill, state plant supervisor of the General Telephone Co. of Wisconsin handling the topic at Cumberland while P. M. Ferguson, Jr. of the Mankato Citizens Telephone Co., Mankato, Minn., displayed slides and spoke at Neillsville.

Three other items of current interest to telephone people brought Attorney R. M. Reiser, Madison, legal guide for the association, to the Cumberland roster talking about a Banker's Pool as an aid in small company financing while J. F. Benjamin and Julius Anderson, who is owner of the Clear Lake Telephone Co., reported on trials and tribulations in converting from magneto to dial. At

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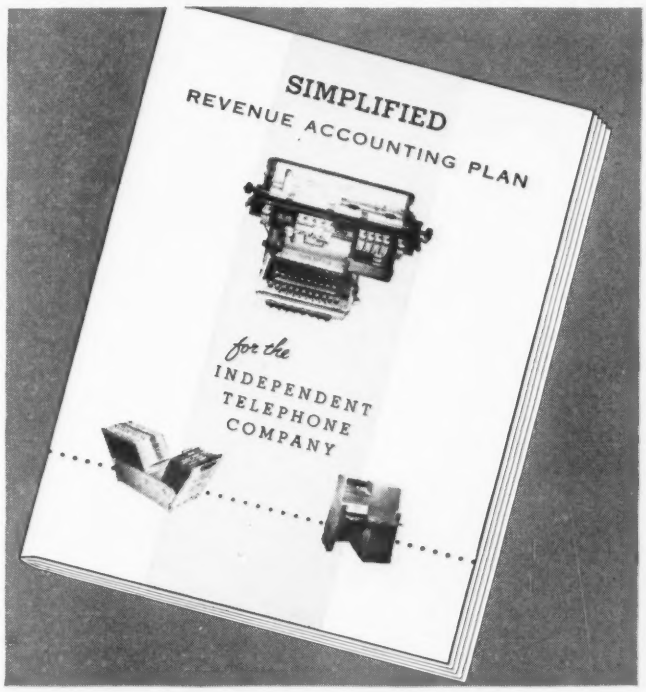

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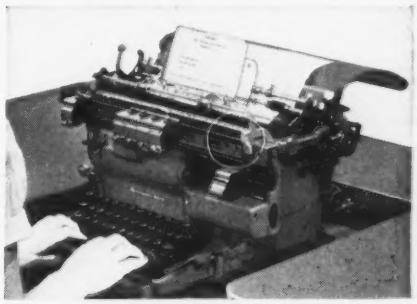

Many at the Convention showed surprise at the output and price of the Low-Cost Bookkeeping Machine. Its simple operation eliminates costly training and premium salaries.

Users testify that mirofilm equipment pays for itself in a year, gives a big boost to subscriber service. You have three different cameras to choose from, depending on your needs.

Highlights and benefits of the new system

The plan speeds and simplifies billing by centralizing record data. *One* card form – the subscriber's office record – serves as application, rate card, credit and installation history and as the basis of all subsequent records. *One* visible pocket is the "home" for all data and documents used in revenue accounting: subscriber's office record, accumulating toll tickets, and unpaid bills. Colored signals show the status of *all* accounts at a glance, pinpoint delinquencies and indicate the need for corrective measures.

Economical machine bookkeeping is a feature of the system. Toll and subscriber charges are posted with typewriter speed and ease on the Low-Cost Bookkeeping machine. Entry is made simultaneously on statement and register, while the machine automatically obtains proof of all postings, gives control totals and shows balances.

An alternate billing method eliminates the work of itemizing toll charges on a separate statement. You can *microfilm* toll tickets and include them with the bill. Experience shows drastic reductions in complaints and office refiguring when subscribers receive the actual tickets. One user declares it saves 60% of the former labor in handling toll charges . . . and cuts filing space 99.2%.

There are many other profitable and ingenious features to the simplified revenue accounting plan. Your nearest Remington Rand office can demonstrate the forms, equipment and procedures involved in the first *complete accounting system* developed for the independent telephone industry. And a wealth of information is yours in booklet **X1463.** Simply mail in the coupon.

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Neillsville, Robert Stoll, a local insurance company representative, gave what could well be termed a short course in the value of liability insurance.

Particularly heartening to the area chairmen, who spent considerable time in setting up the program was the fact that all speakers were barraged with questions upon conclusion of their talks. In most instances remarks were confined to 20 minutes and it was the rule, rather than the exception, that the audience kept the speaker on his feet an additional 45 minutes replying to inquiries relative to his topic.

The Clinic program will commence again early in 1954, although the date has not been established. The Southwest Area, where Francis Willkomm, general manager of the Farmers Telephone Co., Lancaster, serves as chairman is slated for the first 1954 meeting. Sessions are also tentatively scheduled for the South East Area, of which Ralph S. Odegard, president of the Menominee Falls Telephone Co., is chairman and the East Central Area headed by W. J. Gotstein, manager of the Forrestville Telephone Co.

Association President T. H. Sanderson said that the interest in the Clinics has prompted him to extend the scope of the program. In the near future he expects to name committees to assist the Area Chairman in planning their meetings.

H. M. SMITH, chairman of the Wisconsin State Tel. Association's Central Area expresses his thanks for the fine turnout at the Neillsville Area Clinic.

Indiana District Meetings Set Attendance Records

FOR THE SIXTH consecutive year a new attendance mark was set in the series of district meetings which the Indiana Telephone Association held in October. A total of 624 people attended the seven meetings.

The program for each meeting consisted of a visitation period followed by a luncheon, after which R. R. Hirschman, assistant vice-president of Indiana Bell, spoke on the subject,

J. E. WELSH, center, manager of the Peoples Telephone Co., Mt. Hope, Wis., and a member the Wisconsin State Tel. Association's board of directors, FRANCIS WILLKOMM, general manager of the Farmers Telephone Co., Lancaster and chairman of the Southwest Area, A. H. BOWDEN (back to camera) general manager of the Union Telephone Co., Plainfield, and a member of the association board of directors; LAWRENCE ESSER and DELBERT WEPKING, members of the Farmers Telephone Co. board of directors, Lancaster, participate in some informal discussion before the Neillsville program gets underway.

"A Long Range Telephone Program." The talk featured the progress and advances made and the prospects for the future in nation-wide toll dialing, both by operators and subscribers. He also discussed extended area service and the need for telephone companies to be familiar with its possibilities.

Separate Traffic Conferences and General Sessions followed Mr. Hirschman's talk with movies and panel discussions highlighting the traffic sessions. Discussions of "Industry Problems — Large and Small," with the District Small Company Committee chairmen acting as moderators were features of the General Sessions.

M. O. McCarty, assistant secretary of the Indiana Association spoke at each of the meetings and told of the importance of public relations programs and the need for individual companies to consider the use of publicity and advertising media which are available in keeping their stories before the public at all times. Election of district officers and traffic committees closed each of the seven sessions.

The telephone people who attended the district meeting at Turkey Run State Park witnessed the very impressive ceremony in which Mrs. Dessie Welch was awarded a Silver Vail Medal of the A T & T Co. for her heroism and devotion to duty in staying at her post and alerting neighboring towns of the disaster caused when a train carrying live ammunition shells exploded and virtually destroyed the town of Lewis, Indiana last March. The Indiana Association felt honored by Mrs. Welch's selection since she had received the Association Merit Award last May.

New Mark Set As 750 Attend Meeting of Railroad Communication Section

EVIDENCE OF the growing nation-wide interest in railroad communications was marked last month at the 30th annual session of the Communications Section of the Association of American Railroads as 750 railroad communicators, manufacturers, and other interested persons — a new record — gathered at the Plaza Hotel in San Antonio, Tex.,

In his opening remarks, Communications Section Chairman C. O. Ellis, general superintendent of Communications for the Chicago, Rock Island & Pacific Railroad, emphasized that "The most expensive economy possible is for a railroad to have insufficient communication facilities for its needs, especially when so much can be had for so little." Pointing out to the communications engineers that the "busy executives" managing the railroads "are not going to plan our work for us, (and) it is our job to engineer and recommend," he urged "Let us not be negligent in our duty to do so."

Mr. Ellis said that "in addition to two-way radio, which has continued to expand greatly and is rapidly finding itself to be a definite necessity on all railroads . . . carrier telephone and telegraph improvements are constantly being made and this type of equipment will continue to be the work horse of the communications departments carrying the millions of messages and telephone conversations necessary each day for the operation of the American railroads."

Urge Communications To Keep Pace With Motive Power

DONALD V. FRAZER, president of the Missouri-Kansas-Texas Railroad as guest speaker at the annual meeting, called on the communications experts to keep pace with the newer sources of motive power — "butane gas for turbine locomotives, even jet propulsion or atomic energy" — in developing "communications devices and methods with which we can control these new giants of force."

Eight standing committees and four subcommittees of the Communications Section submitted reports on 59 items covering the most recent developments in the many phases of railroad communications. The reports included discussions of carrier telephone and telegraph systems; railroad radio authorizations and inductive carrier installations; public mobile communication services; the Radio-Electronics-Television Manufacturers Association committee on

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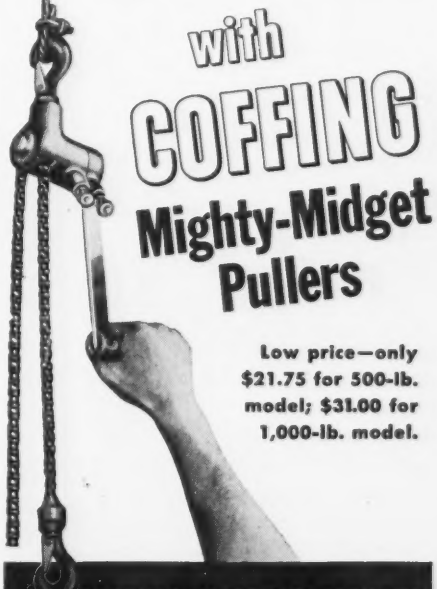

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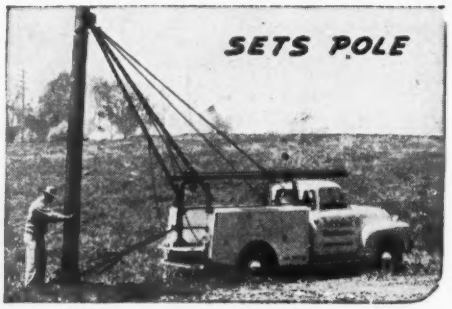

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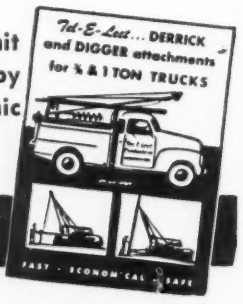

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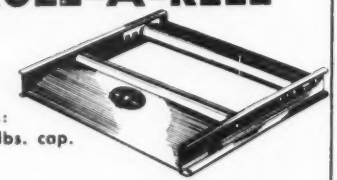

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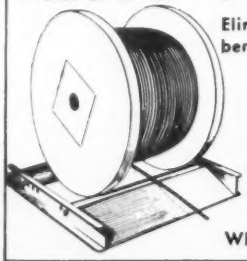

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Microwave relay systems; governmental activities affecting the status of railroads with respect to radio; the use of directional antennas in the railroad radio service; activities of the Radio Technical Commission for Marine Services; microwave activities of the American Petroleum Institute; the application of combined mechanical business machines and teletype equipment for general communication work; and a nationwide telegraph network to handle off-line traffic.

One of the important factors in keeping maintenance costs for railroad radio equipment at a low level, L. E. Verbarg, superintendent of Communications for the Missouri Pacific Railroad, told the Section, "is prompt availability of repair parts to all radio shops." Vacuum tubes are at present the weak link in railroad radio dependability, he said, since statistics show that 63 per cent of all radio component failures are due to tubes.

In a recent six-month period, Mr. Verbarg explained, 244 radio equipment failures per month were experienced with 805 radio units in operation on the Missouri Pacific. However, with the average failure corrected within 24 hours, he said, the availability for all mobile stations is close to 99 per cent. The average period between failures per station, he pointed out, approximates 100 days. Four types of tubes — the 6AK5, the 6J6, the 2E26 and the 6BH6 — representing about 55 per cent of the total number of tubes used, accounted for 78 per cent of the tube failures.

History And Growth Of Mexican Railroads Described

THE HISTORY and growth of communications on the National Railways of Mexico was described by Bernardo E. Arias, superintendent of Electricity & Telegraphs, who pointed out that since the first telegraph system was placed in operation in 1851 over 117 miles of line, the network has expanded to a total length of 24,000 miles of wire for the railways' exclusive communications needs. As an additional load of the railroad pole line, Mr. Arias said, there are 22,200 miles of wire belonging to the Direccion General de Telecommunicaciones and 7240 miles of the Compania de Telefonos.

With an interior plant of 27 first-

class, 72 second-class, and 630 third-class telegraph offices, total handling of messages through the Mexican railroad system in 1952 was estimated at 11,450,192 telegrams and 1,272,711 train orders.

Mr. Arias explained that 60 per cent of the poles along the railroad system are second-hand rails while the other 40 per cent are treated wooden poles. Second-hand rails, he explained, "have proved to be advantageous because of their long life, although at present, it is preferable to use treated wooden poles due to the high cost of iron scrap."

Discussing the application of compandors to railroad communications circuits, George L. Curtis, applications project engineer for the Lenkurt Electric Co., traced the history of the compandor — a device to improve the intelligibility of speech transmission circuits by increasing the signal-to-noise ratio — from its original use with transoceanic radio circuits in the early 1930's to its utilization today in various types of telephone operations. The paper was prepared by Mr. Curtis in cooperation with T. B. Collins, Jr., division manager for Carrier & Radio Sales, Automatic Electric Sales Corp.

K. M. Lockerby, engineer of Telegraph & Signals for the Pennsylvania Railroad, emphasizing the manner with which the sales and service bureaus of the railroads are turning to their communications departments for increased efficiency, described the Western Union Telegraph Co. Intrafax facilities recently installed on the Pennsylvania for rapid issuance of tickets and space coupons in the Pittsburgh, Pa., area.

Mr. Lockerby pointed out that the present Intrafax operation "provides adequate two-way communication for messages, requests for information or space reservations, and for wide dissemination of reserved space coupons from a central bureau." The use of this equipment is "our future planning for the delivery of reserved space coupons to customers and for other uses," he said.

Western Union engineers are now at work on a special coupon transmitter and recorder that will deliver a standard coupon, as now used by the Pennsylvania, in from 10 to 25 seconds, according to available conductors between the points involved, he explained, and "also, soon to be available is an Intrafax transmitter and recorder that will handle copy up to 8½ by 11 inches which will provide transmission of waybills, consists, wheel reports, and other critical data with assurance of error free reception."

Other speakers included Baltimore & Ohio Railroad Communications Superintendent J. H. Wallis, who discussed the many possible uses of transistors in railroad communications, and Union Pacific Railroad System Telephone & Telegraph Engineer C. O. Jett, who described the Union Pacific's training program for telegraph department employes.

At the annual meeting of the Railway Telegraph & Telephone Appliance Association, held Oct. 21, Vice Chairman W. A. Edwards, of the Kerite Co., New York City, was elevated to the chairmanship of the group, succeeding H. F. Timmins, of the Kellogg Switchboard & Supply Co., who was named an honorary member of the association's executive committee. Elected as new Vice Chairman was F. W. Dickerson of the Graybar Electric Co., while G. A. Nelson, of the Waterbury Battery Co. of New York City, was renamed secretary-treasurer of the Association.

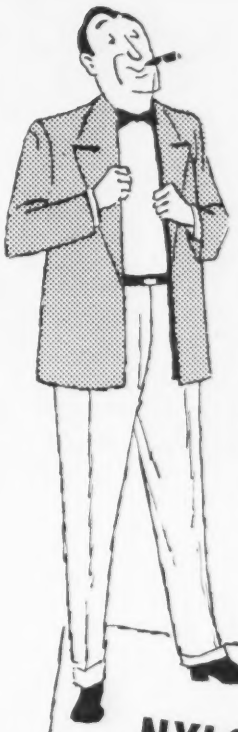
Member companies of the Appliance Association include major equipment manufacturers, Bell System telephone companies, Western Union and other communications engineering organizations. Manufacturers' exhibits, by 40 companies, of the latest developments in communication equipment, apparatus and associated items, were displayed at the annual session. The 1954 meeting of the Communications Section is to be held at the Claridge Hotel in Atlantic City, N. J., next Setpember.

Kellogg Names Petrick Works Manager

JOSEPH A. PETRICK, former assistant to the works manager and employe relations manager, has been appointed works manager of Kellogg Switchboard & Supply Co., a Division of International Telephone & Telegraph Co., Chicago.

Mr. Petrick, a 36-year employe of the Kellogg company, replaces James R. Brock, who resigned. Brock had held the position since Sept., 1952.

Jerry J. Zak, who has served as shop superintendent since 1948, was named assistant works manager. He recently observed his 40th anniversary of service with the Kellogg company.



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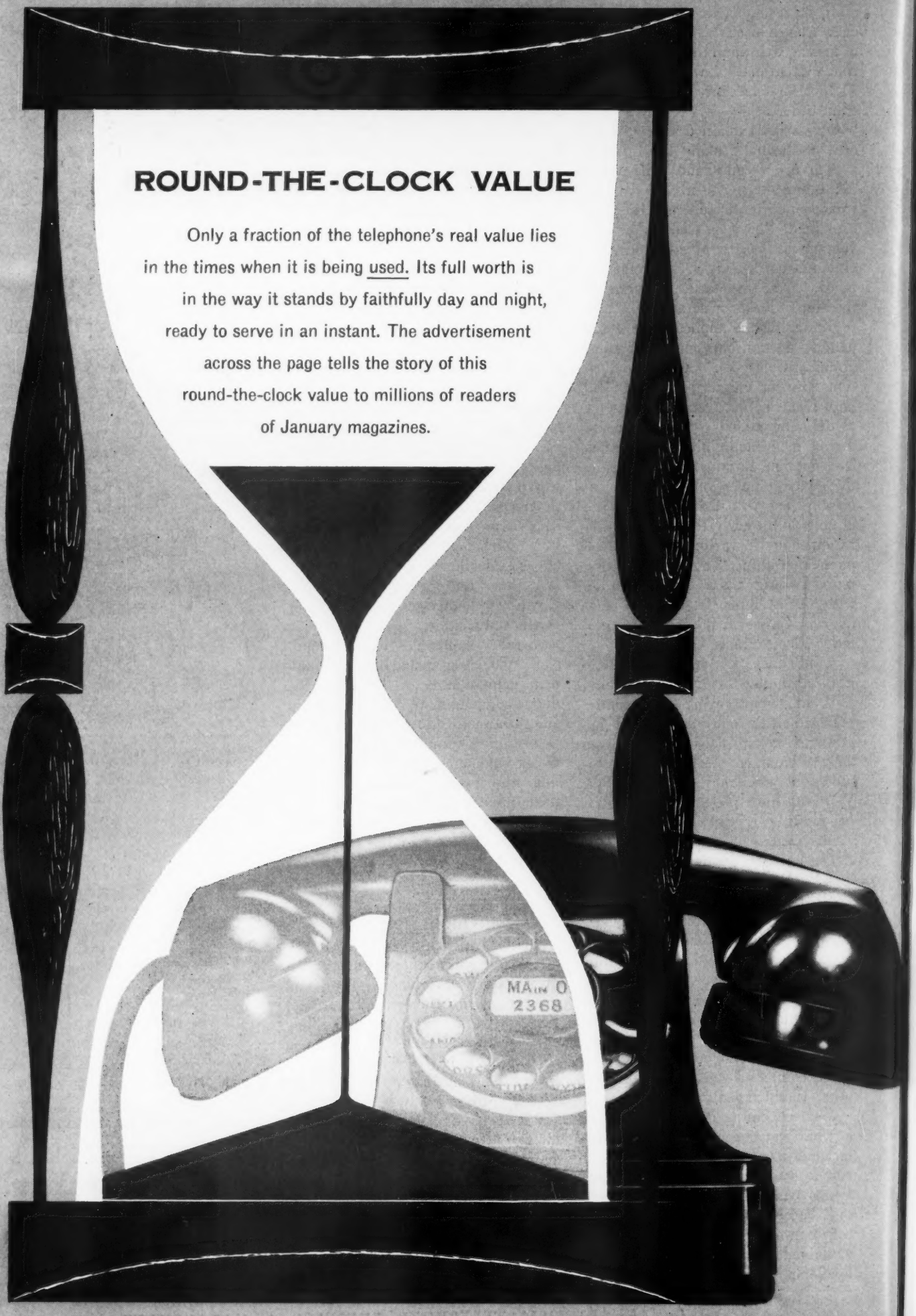
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Only a fraction of the telephone's real value lies in the times when it is being used. Its full worth is in the way it stands by faithfully day and night, ready to serve in an instant. The advertisement across the page tells the story of this round-the-clock value to millions of readers of January magazines.
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Night comes on and spreads a blanket of darkness upon sleeping cities and towns. Here and there a lone policeman. In the distance a clock tolling the hour.

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Traffic Takes Inventory

(*Continued From Page 64*)

pleted, or a station or party report obtained.

Miscellaneous Items:

(21 *and* 22) All calls except to direct circuit points will be counted according to "one switch" or "multi-switch." One switch is counted if one intermediate operator was reached in building up the circuit and multi-switch if more than one intermediate operator was reached in building up the circuit.

(23) *Calls filed without number* — if the called number was not given by the calling party, the number should be encircled when entered on the ticket.

(24) *Calls with coin deposit* — all calls on which a coin deposit was secured by the operator are counted in addition to the count under the call classification. Count only once, even though more than one deposit is made.

(25) *Collect calls* — Out and In ticketed collect calls are counted in addition to the count under the call classification. Also count under this heading all calls "charged to a third station."

(26) *Time and Charge* quoted by Outward operator. This item is obtained by encircling the charge.

(27) *Messages with no lamp supervision* — Calls from magneto stations or ringdown tributaries if completed to a telephone from which switchhook supervision is not received.

(28) *Recording only* — If operators are authorized to record and dismiss customers before any line work is done, recording credit only is given. Such calls will *not* be counted under initial attempts. The notation "rel" should appear in the space for reports.

(29) Applies only in offices having TX positions. If a CLR operator reaches a TX operation in connection with an AG and asks her to pick up a trunk by number, count under this item.

(30) *WH reports* — This represents report tickets written when called parties report ready to talk on Inward calls. Count any NC conditions as on an Out call.

(31) *Reach Information for number* — To distinguish calls on which it was necessary to reach an information operator, mark ticket with a red "D" (directory) in the upper right corner.

(32) *Reach Route and Rate Operator* — To distinguish calls on which a route or rate operator was reached, mark tickets with a red "R" in the upper right corner. Count once for either a route or rate or both.

(33) *Non Ticketed requests* — This count will include such items as requests for rates or other inquiries about toll service.

Inward:

(36) *Answer — no connection* — This item includes calls on which disposition is made without establishing a connection, such as queries concerning whether a circuit is clear, call for the time, etc. It does not include calls on which no connection was made due to NC, BY or other delay conditions.

Other Inward items are counted as designated according to method of completion.

Through Calls: —

(45) Through calls include all calls requiring completion over ringdown circuits to or through other offices, or to ringdown tributaries of the office taking the count. Work in connection with a through call resulting in NC will also be counted.

Auxiliary Count: —

In smaller offices items of work covered herein as auxiliary may be done at the outward switchboard. All items should be counted the same as if they were done at a separate Route and Rate position.

(48) *First Reference* — Count under this item if the information can be secured from first reference material without reference to the Toll Rate and Route Guide. (Toll Rate and Route Guides are supplied only to Toll Center Offices.)

(50) *Charges quoted* — All requests for charges on previously completed calls which are received at the Route and Rate position are counted in this item. Charges quoted at the Rate and Route position may be distinguished from those quoted by outward operators by encircling the charge in color.

Message tickets rated — All tickets rated at a Rate and Route pos-

ition and those rated by outward operators should be counted. Tickets rated by night operators will not be counted. The object is to provide credit for the work time involved. A check mark may be used to distinguish the tickets rated by a night operator.

Now that you've reached the bottom of the page, why not work out coefficients for your office. Next month we plan to tell you about work units and how to use coefficients to compute the requirements and draw a schedule of operators' hours. — THE END.

Navy Unveils World's Most Powerful Transmitter

THE NAVY last month unveiled the world's most powerful radio transmitter. It is located in the Cascade Mountains, 55 miles northeast of Seattle, Wash.

The $14 million transmitter, dubbed "Big Jim," can reach ships anywhere on earth, even submerged submarines, according to the Navy. Its 1,200,000 watt output is twice the power of anything the Navy has formerly used and 22 times as powerful as the nation's largest commercial transmitters.

Rear. Adm. Lewis Parks, Chief of Navy Information, describes the project as one of the Navy's "most important contributions to the nation's security." Reason for this is that fierce magnetic storms have frequently paralyzed communications with naval units operating in the Arctic. "Big Jim's" loud voice changes all that. Now, for the first time, the Navy has a means of instantaneous communication to its fleet units.

The unique antenna system for this transmitter is the first of its type and the largest every built, being suspended between mountain ridges to eliminate the need for high towers. This antenna consists of ten catenary spans of cable arranged in zig-zag fashion, varying in length from 5,640 to 8,700 feet. To withstand ½-inch radial ice in a 65-mile-per-hour gale, a 1.01-inch cable spun from 37 strands of No. 7 extra-high-strength "Copperweld" wire was used. It was essential that these cables have extra high strength and rust resistance as well as high conductivity. About 30 miles of "Copperweld" cable, manufactured by the Wire & Cable Division of Copperweld Steel Co., Glassport, Pa., went into the antenna system.

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TWO-MAN
LINE BODY

model 5000 WD is a sound investment for YOU...

because it will do your line work *at less cost—quicker* and *safer.*

With complete equipment it will dig the hole and set the pole, normally in a matter of minutes, all within full view and control of the truck operator.

Backed by 61 years' experience and embodying skillful engineering and honest workmanship, the model 5000 WD body with equipment represents a truly outstanding investment.

Before you purchase any line equipment, make sure you have thoroughly looked into this modern, up-to-the-minute unit by York-Hoover.

GET THE FACTS! Write for Bulletin No. 931 today.

York-Hoover Corporation
YORK, PENNSYLVANIA
Body Division

Providing Employes With Information

(Continued From Page 48)

than written, don't forget that written is the basis of all our effort and can never be replaced. But an informal face-to-face contact is usually much more compelling than the lecture or "telling" kind. Why? It is warm, it is personal, it allows for two-way movement of questions and answers and ideas.

It can be elaborately described in terms of identification, recognition and participation, in terms of the anecdotal rather than the rational approach — but all that really means is that human beings are more interested in themselves and other human beings than anything else on earth. And when you take advantage of that fact you can't help but be heard.

Self-Interest Is Powerful

WE ALL KNOW, also, the power of self-interest. You read about a flood control project authorized back in Washington, D.C. Interesting, but hardly something to bring you out of your chair. But a few months later, when a government bulldozer chuffs up to *your* property line . . .

What is the practical way to put this point of view to work? Take the young operator, who heard about a rate of return expressed in per cent of total capitalization aggregating hundreds of millions of dollars — about a financially healthy telephone company — something about stocks and bonds — and she backed away from this kind of information.

She's a toll operator. To her, the world of business finance is quite remote. Her day is crowded with cords, keys, toll tickets, and all the fascinating experiences of bringing people together at the switchboard. Including those who don't seem to know the number they're calling.

Wait — how about that idea?

She has heard a lot about the call-

THE UNFAIR TAX

"IN THESE DAYS of taxation without hesitation, you would think that it would be next to impossible to single out any specific tax and label it as the most unfair or unjust to the greatest number of people.

However, anyone who has taken the trouble to analyze the country's tax mess, as the Leader has done, would be struck immediately by the unreasonably high and burdensome Federal excise tax on telephone communications.

One can understand, however unpleasant it might be, a tax on luxuries. But if there is any justification for the exorbitant excise bite that telephone-users are saddled with, we fail to see it.

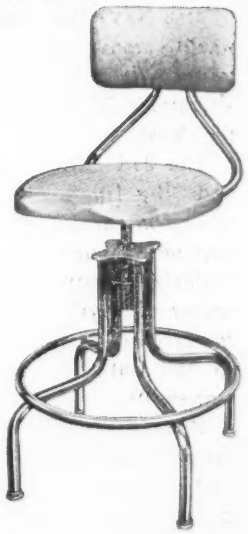
You pay no excise tax on electricity, you pay no excise tax on gas, you pay no excise tax on water, but if you want to make that equally necessary telephone call, your're forced to come up with anywhere from 15 to 25 per cent.

If you want to make a bet with your favorite bookie, Uncle Sam requests you to cough up 10 per cent additional for him. But if you have to call a distant relative to inform him of a death in the family, or some equally important news, the federal government demands 25%. It costs two and one half times as much tax for a telephone call as it does for a wager. How ridiculous can taxation get?

We'll grant that there might have been some justification for almost any kind of tax during an all-out war, but there is no earthly reason for continuing a tax as unreasonable as the one on telephone communications.

The worst part is that it is a tax that you pay directly, with the telephone company acting only as a collection agency. So by knocking this tax off the books, our legislators can pass the saving right on to you" — (Belmont Central Leader).

Construction
With the Double
and America's
the new cane *seat*
is cooler - cleaner -
more comfortable...



sturgis SC-240

Literally "by request"—this new operator's chair retains all the posture advantages for which Sturgis is famed and adds the cool, clean comfort of a *cane* seat. The posture-curved, well-cushioned back rest is covered in genuine leather.

The exclusive Sturgis "Follow-Flex" feature automatically adjusts to the operator's every movement, supports her restfully all the time, discourages fatigue, keeps her at top efficiency.

Other new and welcome features include a plastic-coated steel foot ring which retains its color and a handy purse holder, available on request. Six seat heights, all adjustable.

STROMBERG Telephone CARLSON

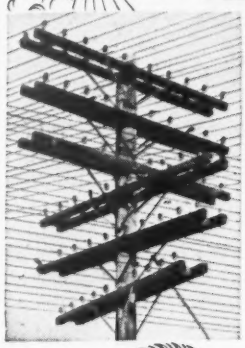
TELEPHONES, SWITCHBOARDS • SOUN

Materials and Supplies . . .

Guarantee of Stromberg-Carlson Leading Manufacturers . . .

"dependable" *means both the trade-mark & the guarantee of cross-arms by*

American Cross-Arm Inc.



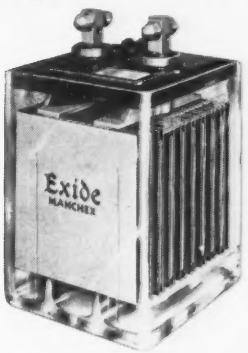
The finest pole and wire installation is useless if cross-arms fail. "Dependable" Cross-Arms are all that the name implies—made of sturdy, American woods, long seasoned, fashioned and finished to stand every weather condition from desert heat to mountain blizzards.

In Douglas Fir—Creosoted Yellow Pine or Gulf-Red Cypress.

Nicopress® the tool and the sleeve that are made to work together

Together they make the perfect splice—good for the life of the wire—fastest and simplest way to a perfect job.

Exide-Manchex telephone batteries



assure positive operation

For Central Office and Private Branch Exchange Equipment

This is proven daily in exchanges of every size . . . for over 60 years Exide Batteries have been serving the Telephone Industry . . . the Manchester positive plate with its exclusive button type construction provides exceptionally long life . . . latest developments on molded glass jars permit compact space saving installation . . . heavy terminal posts with copper inserts provide extra conductivity for sustained voltage at high discharge rates . . . microporous rubber along with slotted plastic separators, are impervious to chemical and electrical reactions . . . plastic spacers assure plate alignment . . . for assured dependability, long life and low-cost maintenance use Exide Manchex.

The Electric Storage Battery Co.
Philadelphia, Pa.

1888 . . . Dependable Batteries for 66 Years . . . 1954

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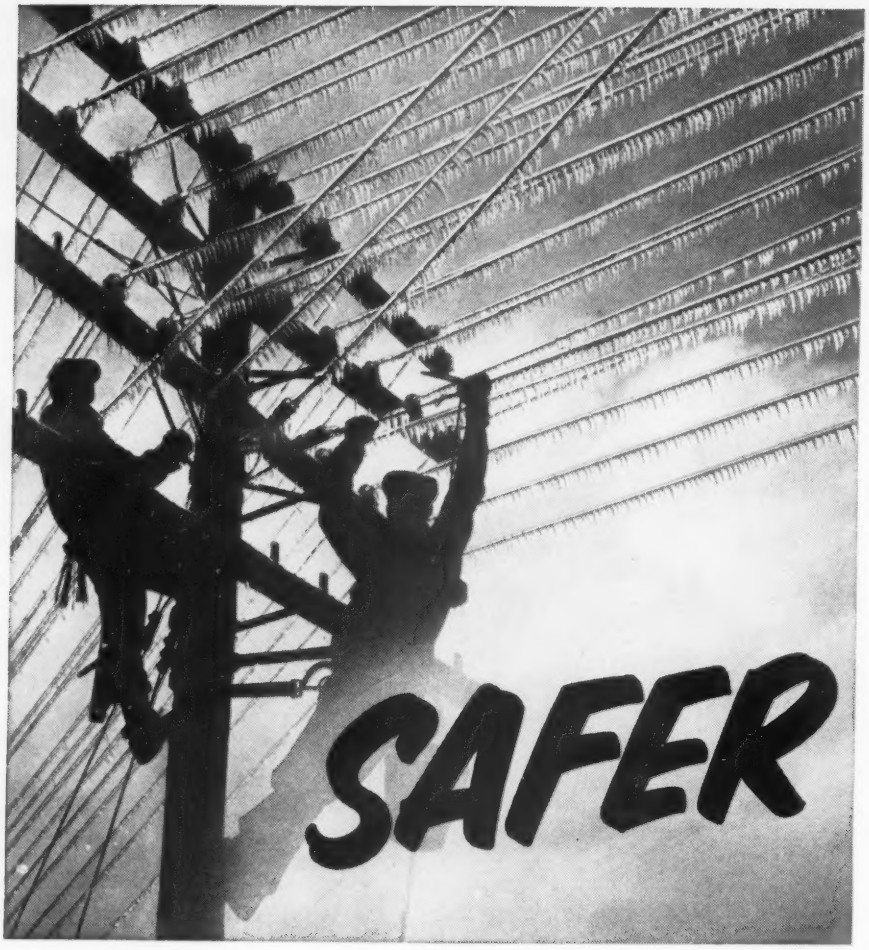
ROCHESTER • CHICAGO • ATLANTA • KANSAS CITY • SAN FRANCISCO • TORONTO

EQUIPMENT AND ELECTRONIC CARILLONS • INDUSTRIAL INTERCOMMUNICATION SYSTEMS • TELEVISION, RADIOS AND RADIO-PHONOGRAPHS



A veteran lineman was asked: "What precautions do you take before climbing a pole to make sure that it is safe?" His reply: "First we make sure it's a Koppers Pole, then we don't worry."

on dependable Koppers Poles

• It's a nasty job, at best, to work on lines that are crusted with ice. And linemen don't want the additional danger of working on spongy poles that have been weakened by shell rot.

When the poles are Koppers, linemen are safer. They *feel* safer, too, because they know their gaffs will get a good, solid bite on sound wood.

Koppers Poles, for their full length, are pressure-creosoted against decay, weathering and termite attack. They *stay* sound and strong through the years.

Many strategically located Koppers treating plants assure prompt, dependable service.

For dependable poles, backed by a dependable company, specify Koppers. Write to us for prices or further information.

KOPPERS COMPANY, INC.
Wood Preserving Division · Pittsburgh 19, Pennsylvania

KOPPERS PRESSURE-CREOSOTED WOOD

by-number program. She places calls for some customers who don't have the number they want. She knows how circuits are held up while the number is being found — how much additional work is required by Information and other operators. She's fully aware of what her company is doing to improve call-by-number performance. The whole subject is as close to the operator as her headset.

This ought to be a "natural"! How about the dollars in circuit time and the services of other people required on calls not placed by number? It's expensive not to encourage calling by number. Such expense is a big item in the company's year-round operations. It's here — in the Annual Report — and one of the items we must allow for in the rate structure.

Call-by-number is a familiar subject and right here at the switchboard less than a cord's length away are the means to relate the company's operations and financial health to it.

But you don't do all the talking. If necessary, you bite your tongue to avoid it. Because there are two sides to this thing, and she has some questions and some opinions too. And you are now committed to lean over backwards to give her a chance to participate.

When you are through, she says, "Gee, I didn't know all that." Or, "That's interesting." Perhaps — because, after all, you have been answering questions she raised — she says, "Thanks," and really means it.

Why shouldn't she? This talk has tied into her day-to-day work. It will enable her to answer questions her friends might bring up. It has been clear enough for her to understand while holding her interest. It has enabled her to take part in one of life's most satisfying experiences — a sharing of ideas and opinions. She has learned something more, perhaps, about the background of the call-by-number program. She has also learned — without even being conscious of being told — something about good management judgment and the company's approach to one aspect of its rate problem.

Is she likely to say "So what?" now?

Or take something the operator herself has expressed an interest in. Once she asked you about promotions. Promotions are related to a large degree to the growth of the bus-

iness. The last few years tell an impressive story. So will the next few — assuming the company attracts the capital for the new equipment needed for growth. The ability to do that is tied directly into the financial health of the company. In answering her question, you are telling her much of the story contained in the Annual Report. Perhaps you don't even mention rates directly. But the point is made in a reasonable and natural manner. And, best of all, she is learning that the information is readily available to her.

This kind of communication doesn't fail. It is what is meant by understanding and using Employe Information to its fullest advantage. It means making sure you know what the employe really wants and needs, then filling those desires promptly, clearly, and completely.

When expressed as a continuing point of view by the supervisor, and supported consistently in written material, this has a striking effect on morale. In the last analysis, what is more important to the public relations or the productivity of the business than the morale of the people who are its greatest asset? — *This article has been reprinted from the Autumn,* 1953, *issue of the* BELL TELEPHONE MAGAZINE.

400,000 Wait For Service In Britain

GETTING A TELEPHONE in Britain is a tedious business unless you are one of the privileged few with a high priority rating or you are a farmer.

According to International News Service (INS) the General Postoffice (GPO) which runs the nationalized telephone service, says there is a backlog of about 400,000 would-be subscribers. Two hundred and seventy thousand of these are private householders.

GPO officials told INS they cannot predict when the applicants will be getting telephones. They admit it is "not unusual" for a private subscriber to wait for a year before he gets his telephone installed and connected. Farmers, because of the important role they play in feeding the nation, get favored treatment. An average of 11,000 farm telephones are being hooked up each year.

Despite the effects of war-time shortage, Britain is reaching the 6,000,000th telephone mark.

EWING GALLOWAY

Recognized Everywhere...

WHEREVER YOU LIVE, you recognize this view of Niagara Falls, famous scenic wonder near Buffalo. And the Buffalo area recognizes the Leece-Neville Alternator... it is doing a great job there every day on cars and trucks of several utilities.

This is just one of the many places where you will find L-N Alternators. They're in Allentown, Amarillo, Portland, Montreal and hundreds of other city and rural utilities, large and small, here and abroad.

More than seven years of reliable performance on thousands of cars and trucks has earned this wide acceptance of the L-N Alternator as a replacement for the conventional d.c. generator.

Because the L-N Alternator delivers 25 to 40 amperes at curb idle, batteries stay charged, vehicles keep rolling, crews stay on the job. L-N Alternators have ample capacity to handle a big load of accessories... up to 95 amperes on 6 volt systems; to 180 amperes for 12 volt. With the L-N Alternator System, two-way radio is surer and clearer. And maintenance and operating costs are much lower.

By attaching an L-N Transformer to the Alternator, 110 volt power is available. Your crews can plug in soldering irons, flood lights, electric drills and other portable power tools. Send for special Transformer folder.

You can rely on L-N Alternators to go on delivering top performance year after year with only routine maintenance. Transferred from car to car, many L-N Alternators have run 500,000 miles and more.

Be sure to specify L-N Alternators on your vehicles. For all the facts, write The Leece-Neville Co., Cleveland 14, Ohio. *Custom-Engineered Electrical Equipment Since 1909.*

YOU CAN RELY ON Leece-Neville

L-N Alternators proved by performance for over 7 years

Line Requirements For Carrier

(*Continued From Page 52*)

it naturally follows that there will be considerable difference in the effectiveness with which they suppress crosstalk and noise effects. There are, however, several important factors which have a bearing on the effectiveness of any carrier transposition system and are common to all systems; these are: (1) uniformity of wire spacing and configuration; (2) uniformity of sag on all carrier transposed wires; and (3) uniformity of transposition intervals. All of these factors are of about equal importance and all must be given proper attention if the best results are to be realized; especially with the carrier systems operating in the frequency range above 10 kc.

From an analysis of *Figure* 3 and a comparison with various standard curves, it will be evident that carrier frequency transpositions are also of considerable importance in reducing attenuation and "smoothing" the line loss characteristic curve, especially at the higher frequencies.

Conclusion

THE CHARACTERISTICS of the lines over which carrier systems are to be operated are very important since it is difficult to engineer the layout of a system without first securing and analyzing a considerable number of facts relative to the line facilities involved.

The most satisfactory and reliable procedure is to make transmission measurements in both directions on suitable lengths, not to exceed about 150 miles, of the line facilities to be used for carrier system operation. From these measurements suitable repeater locations can be determined and any serious absorption or reflection effects can be found. The amount of high frequency noise present in each section can also be measured. If the carrier system being contemplated is to parallel existing systems then it will be necessary to take into account established terminals and repeater points and make the above mentioned measurements on sections of the line facilities corresponding to the established repeater sections. In this latter case crosstalk measurements should be made in each repeater section between the pairs of wires over which the several carrier systems are to be operated.

If the above information is unobtainable the layout of the proposed carrier system can be engineered on the basis of calculations of the line losses, noise and crosstalk effects and reflection effects.—THE END.

AT&T Cable System Will Span The Atlantic

THE ATLANTIC OCEAN is soon to be spanned by its first undersea telephone cable. Some 2,300 nautical miles of the thin cable, barely 1¼ inches in diameter, will be unreeled and laid on the ocean floor to supplement telephone service between North America and Europe. It will stretch from Nova Scotia to Newfoundland and from there across the North Atlantic to Scotland.

American Telephone & Telegraph Co. has started work on the new line and expects to finish it in about three years at an estimated cost of $35 million. And before the vast project is completed, AT&T will have chalked up a number of firsts:

(1) Until now, telephone talks across both the Atlantic and the Pacific have been by short wave. The new cable will be the first of its kind to cross an ocean.

(2) It will be by far the world's longest underwater voice cable, AT&T reports. Runner up for the title would be the company's system between Key West, Fla., and Havana, Cuba.

(3) The new cable will also be the first laid at the great depths found in mid-ocean. AT&T says a big technical problem was solved by the development of amplifiers that can be laid from a cable ship and can operate under the tremendous pressure of a good three miles of ocean water.

The line will have 100 such amplifiers, each with three vacuum tubes. They'll be housed in a big flexible copper tube and built into the cable as a tapering bulge that will pass through the ship's gear as the cable is unreeled into the water.

The cable itself will handle 36 separate telephone conversations at once to supplement the radio circuits now used. The band width will be insufficient for television, but it's expected also to supplement the transmission of overseas radio programs.

The project is going to be a joint

Please Turn To Page 96

Construction
With the Double
and America's
cook's type 53
interior junction bo

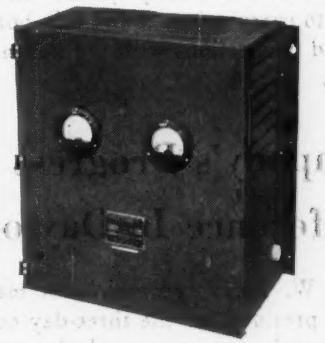
Designed for use in P.B.X. install
tions, in small unattended exchang
and for the floor distribution of cabl
in factories, offices and stores whe
screw connections for drop wires a
desired—with *economy*. Woode
base; enameled metal cover. Sold
clips on Cable side; screw conne
tions on drop side. Furnished in
and 26 pair capacity.
Mfd. by Cook Electric Co
STROMBERG Telephone CARLSON
TELEPHONES SWITCHBOARDS

Materials and Supplies . . .

Guarantee of Stromberg-Carlson Leading Manufacturers . . .

RAYTHEON RectiChargeR*

maintains constant voltage output over the complete load range!



Maintains the close voltage limits required by telephone systems and reduces such common difficulties as incorrect ringing, line noises and lamp failures. The constant potential method of charging prevents battery gassing and water loss. A smaller maintenance crew can handle a greater number of installations.

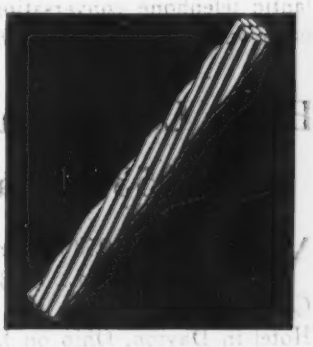
A small storage battery floated across the terminals of a Raytheon RectiChargeR for emergency and peak period use is kept at constant cell voltage so that it never becomes overcharged or undercharged . . . thus prolonging the life of the battery.

The frequent use of the Raytheon RectiChargeR in unattended exchanges is ample proof of its dependability. Available from 1.0 to 100.0 amperes with either 24 or 48 volt output.

*Reg. U.S. Pat. Off.

crapo galvanized strand

Guy and Messenger

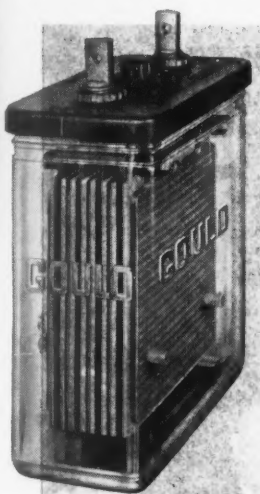


LONG LIFE — LOW COST

The superior tensile properties inherent in steel are used to full advantage in *Crapo* Galvanized Strand. The tightly adherent zinc coating applied by the *Crapo* Galvanizing Process provides lasting protection against corrosion, prolongs the life of the strand. Controlled ductility makes *Crapo* Strand easy to work and to serve. Low first cost and low yearly cost result in important economies.

The all-round dependability of *Crapo* Galvanized Steel Strand is being demonstrated constantly by its outstanding performance in service. There is a size and grade for all practical needs.

the battery that lasts practically forever



gould planté

For long life and uniform dependable service, no other telephone battery equals the Gould Planté. It has rolled up amazing performance records, remaining in active full-float service for 20 years, 30 years and longer!

In the Planté, *all* of each positive plate is pure lead, containing *no* antimonial impurities. Thus, Gould has eliminated the primary cause of self-discharge, capacity losses and shortened battery life. Planté batteries float at constant voltage and maintain rated capacity all their life. Because they almost never need service, maintenance is negligible. If you would cut battery costs to a minimum, choose Planté.

Made by GOULD-NATIONAL BATTERIES, INC.

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EQUIPMENT AND ELECTRONIC CARILLONS • INDUSTRIAL INTERCOMMUNICATION SYSTEMS • TELEVISION, RADIOS AND RADIO-PHONOGRAPHS

enterprise of AT&T, the British Post Office and the Canadian Overseas Telecommunication Corp., all three of which have signed an agreement to provide service for their countries. AT&T will have a 50 per cent interest.

The cable itself will be a flexible copper tube only 5/8 of an inch in diameter. But, it will be insulated in polyethylene plastic and wrapped with copper foil, jute and steel armoring wire, giving it a total outside diameter of about 1-1/4 inches.

AT&T is convinced the line will bring greater reliability to transatlantic telephone conversations. The cable will be proof against the atmospheric disturbances and magnetic storms that sometimes interfere with communications by present radio circuits, a spokesman explains. "We can't neutralize those with our present equipment," he says.

The transatlantic part of the system will stretch along the ocean floor 2,000 nautical miles from Oban, Scotland, to Newfoundland. There it will connect with another submarine cable extending 300 miles to Nova Scotia. At that point, a 350-mile overland microwave radio relay system will be built to carry voices to the U.S. border and connections with the Bell network.

Berry Co. Announces Company's Progress At 1953 Managers' Conference In Dayton

WHEN THE 1953 sales managers conference of L. M. Berry and Company was held at the Biltmore Hotel in Dayton, Ohio on December 7, 8 and 9th, 35 territory and division managers and their assistants met to discuss the company program and policies for 1954. These men, representing top sales management of the company from all divisions, heard John W. Berry, general sales manager, preside over the three-day conclave and present one of the most challenging programs in the company's history.

On the opening day Mr. Berry announced the theme for the conference and for the forthcoming year, which was "IDEAS WILL SCORE IN '54." He stressed that the program adopted by the company should be supported by sound business practices and that its aim always should be the promotion of good public relations between telephone companies and their subscribers. Ways of doing a better job for the Independent and Bell Telephone Companies, whose directory work the company handles, and ways of furthering the company's objective in promoting and maintaining good public relations and subscriber good will for its telephone company customers were discussed and emphasized.

The company's growth and progress was reviewed by Mr. Berry. Seventy-seven new directories had been added during the year, which now brings the number of directories handled by the company, to over 900. These directories represent over 222 Independent and Bell Telephone Companies in 29 different states.

"Another good year for business in '54" was predicted not only by Mr. Berry, but by many outstanding leaders in business and industry who had sent in special messages to be read at the conference.

A new sales incentive program for 1954, called "CLUB FIFTY-FORE," was announced to the group. This program will award merchandise prizes

Seated (l. to r.): — JOHN W. BERRY, general sales manager; W. A. STEUER, general manager; E. F. TINNERMAN, Wisconsin Division Manager; S. H. RAINEY, Southern Sales Supervisor; M. F. FEENEY, Kentucky Division Manager; N. E. ROBINSON, Ohio Division manager; I. J. KLASS, Western manager; J. E. WHALEN, Wisconsin division manager; B. D. ADDINGTON, Mid-Eastern division manager; J. D. BECKHAM, Mississippi division manager; RALPH MANER, Florida division manager, L. E. GETZLER, New York division manager; K. R. JEFFERS, Western division manager; J. J. MULLIN, special representative; W. C. WELCH, Louisiana division assistant; WILLIAM MAIER, Jr., Tennessee division assistant; J. C. GRIMES, Ohio division assistant; PHIL ENGLE, General art director; H. C. EVANS, Mid-Western division manager; J. M. BAYLEY, Alabama division manager; ED BRUNDAGE, Jr., Pennsylvania division manager; J. R. THOMPSON, Tennessee division manager; H. F. SCOTT, Midwestern manager; W. L. WOLCOTT, personnel and training director; J. W. CRAIG, Jr., general sales supervisor; R. W. BRUNDIGE, sales promotion manager; H. L. BOEBEL, general sales assistant; J. P. WHITE, southern manager; J. Z. WILSON, Eastern sales manager; W. J. McGIRL, Louisiana division manager; F. L. HAWKER, Eastern manager; LOREN M. BERRY; and H. C. HULL, statistician.

Telephone Directory Advertising Exclusively
L.M.BERRY & CO.
ESTABLISHED 1910
OUR TELEPHONE CUSTOMERS GREW IN 1953
In 1953 We Gained
"ON THE JOB... AFTER YOUR JOB IS DONE"

to all sales personnel meeting objectives on new and increased business in 1954.

This 3-day conclave also included discussions on personnel, training, management, supervision, and sales promotion. Skits, slides, charts, panels, question and answer periods, and gimmicks made the meetings varied and interesting. It was by far one of the best conferences ever held in the 43-year history of the Company.

This conference will be followed by other meetings for all supervisors, which will be held in each Division.

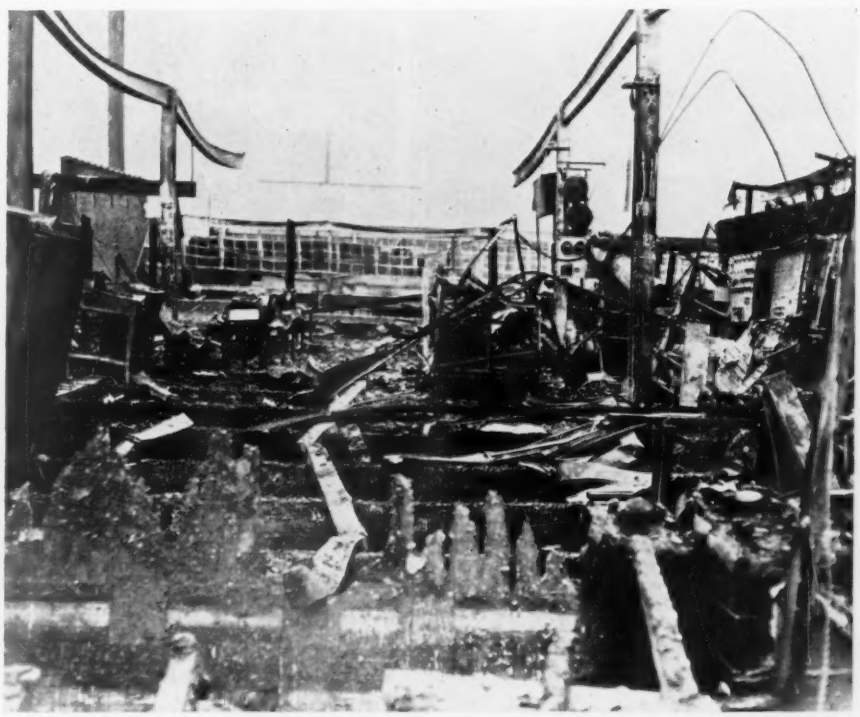
Production Resumed After $1,000,000 Fire At C & D

DESPITE a $1,000,000 fire that destroyed the main factory buildings, offices, engineering department, and laboratory of C & D Batteries, Inc., Conshohocken, Pa., on Sunday, November 29, 1953, limited production was resumed in three days. Approximately 80% of the company's floor area was destroyed.

Breaking out about one a. m., the fire raged uncontrolled through C & D's block-long plant for more than four hours. Firemen from eight companies finally succeeded in putting the fire out about noon Sunday.

Even before the fire was out, C & D management met to survey the damage and to decide what steps should be taken to get back into production. The check of the plant showed that the casting room, machine shops, generators, and shipping department escaped the fire.

Immediate negotiations were be-



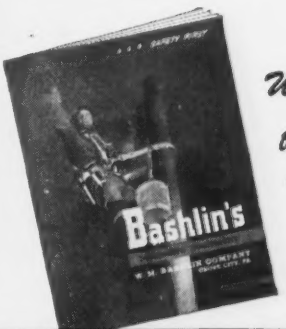
The remains of the research laboratory after a $1,000,000 fire at C & D Batteries, Inc., Conshohocken, Pa., Sunday, November 29. The picture was taken from the engineering department looking past the locker rooms on the left. In spite of the extensive damage, production was resumed in three days.

BASHLIN EQUIPPED!

A Full 5 Inches of Body Movement
With Ease and Safety

BASHLIN'S
New Shifting Tool Dee Safety Belt

Next to Safety in the experienced lineman's book, Accessibility of Tools is of first importance in selecting a Safety Belt. This new Bashlin Safety Belt is designed with sliding tool loops . . . keeps tools within easy reach. And the built-in extra safety factor saves the Safety Strap from wear. It's Safe . . . Practical . . . Comfortable . . . and you *know* it's right. It's Bashlin.



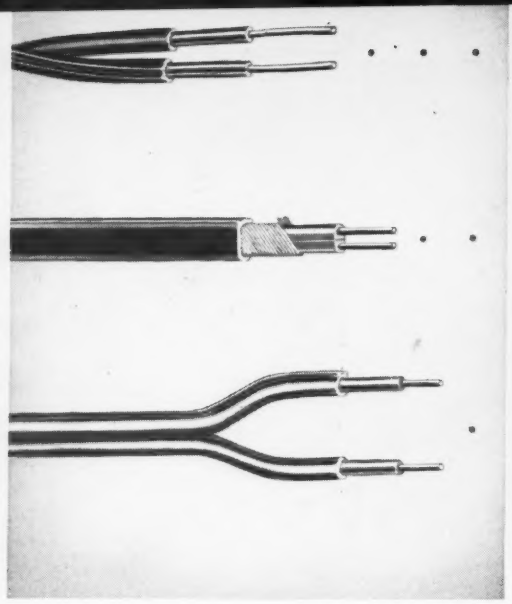
Write for this new book

W.M. BASHLIN COMPANY
GROVE CITY 1, PA.

Sealed Against Trouble! Communication equipment manufacturers demand Kester Plastic Rosin-Core Solder, because it makes a perfect seal. Prevents high-resistance joints and intermittent open-and-close circuits. KESTER SOLDER COMPANY.

•

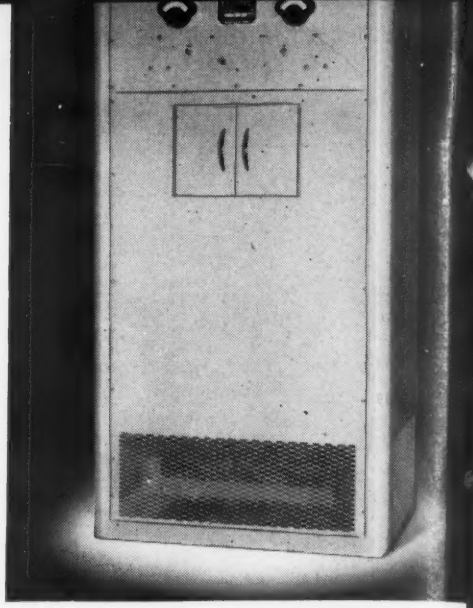
Peatrophone Answers the Telephone automatically—allows subscriber to record his own "talk-out" message on the instrument, advising where he can be reached or when he will return. Talk-out messages can be used indefinitely, since recording is permanent.



Afraid of Winter? Keep your lines in action — your maintenance costs down, with DIAMOND WIRE and CABLE CO.'s RED-D Drop Wire. Superior adhesion, conductivity, tensile strength. Available in Copperweld and Signal Bronze.

•

The Expanding Plates and Spreader Arms of Everstick Anchors insure 100% safety and maximum holding power under excessive strain. Ribbed base plate allows anchor to be locked solidly on rod. Quickly installed. Made by EVERSTICK ANCHOR CO.



Automatic Constant Voltage Battery Charger! By adding the proper 3-phase FLOTROL to your exchange you can maintain full-floating operation, cut down running time on your rotary equipment, and save on your power bill. LORAIN PRODUCTS CORP.

•

Your Battery Problems Are Solved when you put Gould Plante' and Flote' Batteries to work. Unique features of design cut maintenance and charging costs, lengthen life and reduce replacements. Made by GOULD-NATIONAL BATTERIES, INC.

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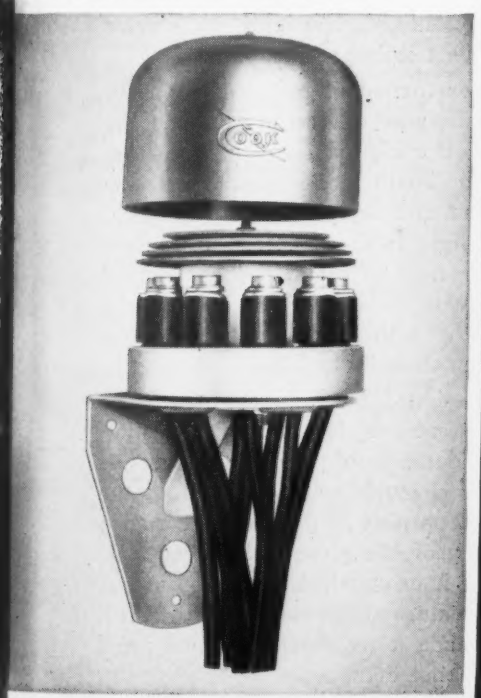

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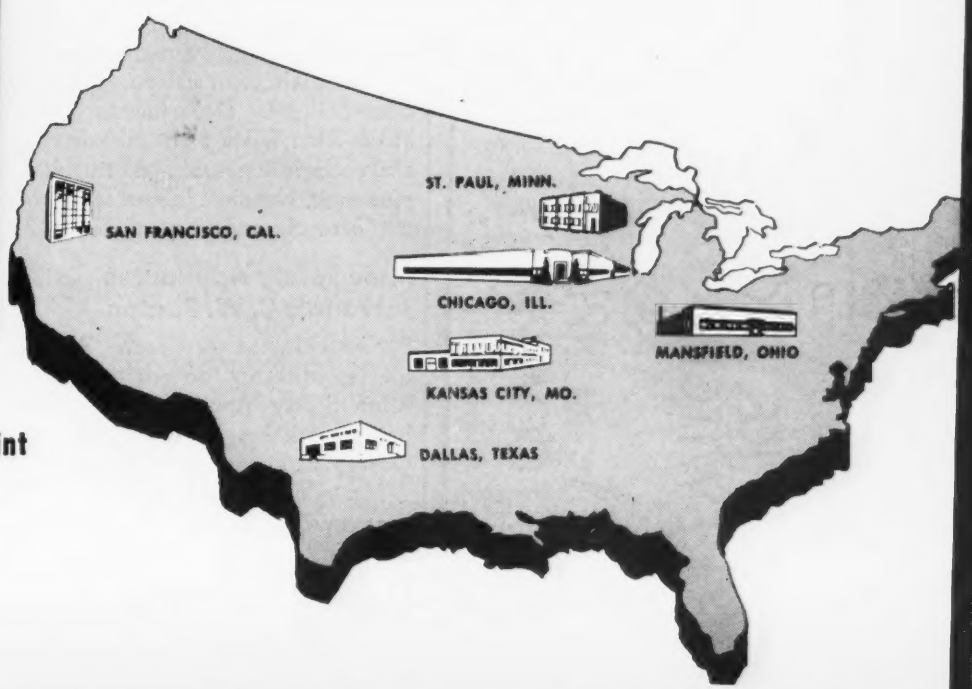

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gun to obtain temporary production and office facilities in nearby properties. Production space was leased in one of the plants of the Alan Wood Steel Co., and the Quaker Chemical Products Co. made adequate space available for administrative and clerical forces.

On Dec. 1, utility lines were connected and work started on cleaning up the salvageable portions of the plant. Charging of new batteries that escaped the fire began Wednesday at noon and grid casting began Dec. 3.

Suppliers gave C & D priority on new equipment and materials started rolling in. By Dec. 1, the administrative and clerical forces were working and by Dec. 2 production forces started coming back. Friday, Dec. 11, found approximately 65% of the production force again at work.

Production on large power telephone batteries started Dec. 9 and on small power telephone batteries Dec. 11. Production was started on industrial truck batteries Dec. 15. The major part of this production is being obtained in temporary or leased facilities, and necessitated acquiring and installing complete production and power facilities. This includes generators, controls, transformers, acid equipment, charging lines, forming tanks and special assembly equipment.

The company's operations have been grouped in three main locations: 813 Elm Street, the main C & D plant, and a plant of Alan Wood. Time keeping, accounting and sales are located at Elm Street. All casting, pasting and plate processing; the assembly, charging, and shipping of telephone and power batteries goes on at the main plant. In addition, the purchasing, advertising, personnel, and maintenance departments are located there. Departments located at the Alan Wood plant include planning, scheduling, material control, engineering, chemical laboratory, product control, and inspection.

Mine Safety Appliances Advances C. W. Punton

APPOINTMENT OF Charles W. Punton as director of engineering of Mine Safety Appliances Co., Pittsburgh, Pa., has been announced by George H. Deike, Jr., vice-president.

Mr. Punton has been with the company since 1929. He started as an industrial engineer and, in 1941, was named works manager. A graduate of the University of Kansas, Mr. Punton also received M. S. and I.E. degrees from the University of Pittsburgh.

A member of the Pittsburgh Chapter, Society for the Advancement of Management, Mr. Punton recently was one of three men nominated by the group for its annual Human Relations Award in recognition of their work for the Pennsylvania Association for the Blind.

Mr. Punton also is a member of the American Society of Mechanical Engineers, American Society of Safety Engineers, Veterans of Safety, Delta Tau Delta Fraternity and the Pittsburgh Athletic Association.

Gladwin Glo-Dome Now In Mass Production

AFTER MORE than a year of development, field tests with handmade prototype and the incorporation of new improvements based on these tests, the Gladwin "Glo-Dome" is now in quantity production and ready for immediate delivery, it was announced by George Phillips, Jr., Gladwin's specialist on service to the telephone industry.

Constructed of polyester resins in a Fiberglas reinforced laminate the "Glo-Dome" makes a unique telephone booth roof in that it is translucent and self-signing. As a result, the light in the dome creates a beacon effect at night and has helped increase revenues from telephone booths with Glo-Dome installations as much as 30 to 50%.

Designed by Robert Fitch Smith & Associates for Gladwin Plastics, the dome is of unique design. The roof channels water away from the front opening by draining to corners; being of one piece molded construction it cannot leak; and because of the nature of the material of which it is made it requires no painting and does not deteriorate.

To introduce the new booth roof to the telephone industry, Galdwin Plastics produced a number of hand made prototypes which were sent out to interested executives for field testing under varying conditions in all parts of the United States. As a result of observations of performance on actual locations, many improvements were included in the

HARRY M. BRUCKART has been appointed chief engineer of the Stromberg-Carlson Telephone Division.

ROBERT R. DOBBIN has been appointed assistant chief engineer of the Stromberg-Carlson Telephone Division.

mass production model. For one thing, a formula was developed for new stabilized color resins that will not turn yellow or discolor when exposed to sunlight. A new translucent perforated breather section was incorporated into the front overhang to permit air to circulate freely and light to illuminate front of booth. A new bug shield was built-in to keep the interior of the Glo-Dome free of insects. Also, a new, improved technique of signing was developed using brighter colors with larger letters to make the sign visible from greater distances.

An invitation has been extended to interested telephone company executives and distributors to visit the Gladwin plant at 275 Houston Street, N. E., Atlanta, Ga., to see the Glo-Dome in actual production.

Stromberg-Carlson Advances Bruckart and Dobbin

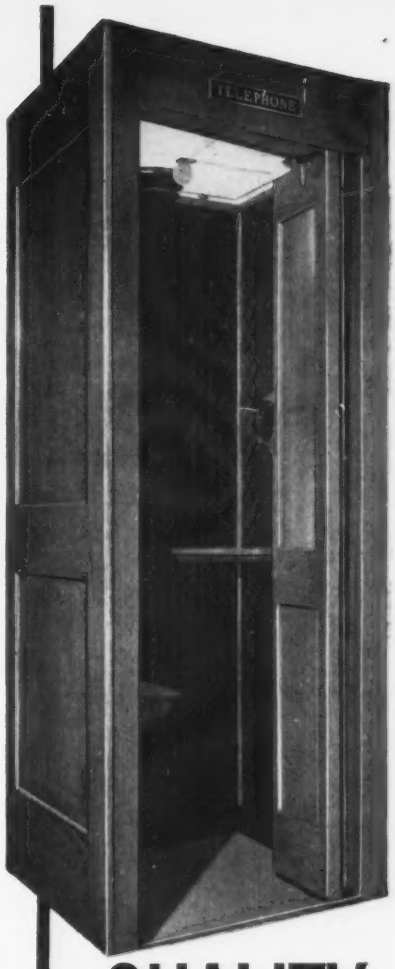
HARRY M. BRUCKART and Robert R. Dobbin have been appointed chief engineer and assistant chief engineer, respectively, of the Stromberg-Carlson Telephone Division, according to John H. Voss, general manager.

Mr. Bruckart, formerly in charge of systems engineering for the Telephone Division, has been with the company since 1946. Prior to joining Stromberg-Carlson, he was associated with telephone operating companies and manufacturers in Fort Wayne, Indiana and Chicago, Ill. A graduate of Ohio Northern, Mr. Bruckart first started his career in a hydro-electric plant and in 1919 switched to the telephone field as an installer in the Keystone Exchange in Philadelphia, Pa.

Mr. Dobbin was formerly in charge of telephone apparatus design and came with the company in 1946, the same year as Mr. Bruckart. Born in Milwaukee, Wisc., Mr. Dobbin graduated from Lake Forest College, majoring in physics and economics. Graduate work was done at Purdue University. Previous to coming to Rochester, Mr. Dobbin's experience includes work in the radio manufacturing field as well as in acoustics where he designed sound absorbing materials. Joining Stromberg-Carlson in 1946 he was assigned to loud speaker design and later was transferred to the Telephone Division because of his experience in the field of voice transmission.

Holtzer Cabot Announces New Hand Generator

A NEW PRODUCT of the Holtzer-Cabot Telephone Equipment Division, the RWG-2308 Hand Generator has been developed by the National Pneumatic Co., Inc. and Holtzer-Cabot Divisions Research and Development Laboratories at Boston, Mass. The generator meets requirements of the U. S. Signal Corps. for use in field telephones, field switchboards, radio control units and other communication devices and test sets. Besides being suitable for new applications, it is mechanically and



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electrically interchangeable with other types of generators now in use.

Although only approximately 2-9/16″ diameter by 2-15/32″ long, this generator, at 200 rpm crank speed, produces 20 cycles AC, at 1.75 watts with an open circuit voltage of 95-100 volts. Rotor speed at 200 rpm crank speed is 1200 rpm through a 6-1 gear ratio.

A feature said to be unique in hand generators, is a specially shaped unsymmetrical pole shoe arrangement which limits the starting, cranking torque to a maximum of 2-½ inch-pounds. A special cut-in switch, incorporating a dashpot, allows the line to discharge its electrical energy before the talking circuit is re-established, thus eliminating acoustical shock in the telephone receiver.

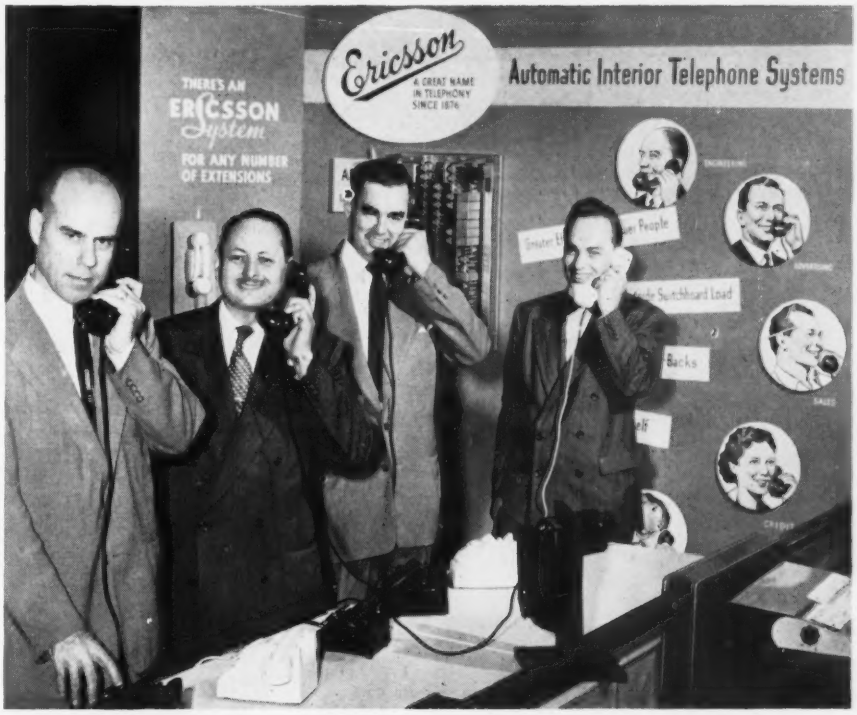
The complete unit, including gearing and hand crank assembly, does not weigh over 23 ounces. The generator meets all requirements of specification MIL-G-11994 (Sig. C) including hermetic sealing and fungicidal treatment. For additional information write J. J. Anderson, Holtzer-Cabot Telephone Equipment division sales manager, National Pneumatic Co., Inc., 125 Amory St. Boston 19, Mass.

U.S. Steel Advances Maxwell D. Millard

MAXWELL D. MILLARD, who started his career with American Steel & Wire Division in 1934 as a technical apprentice in a wire rope mill at New Haven, Conn., has been named to the newly created position of assistant general manager of sales. Mr. Millard, who comes to his new post in Cleveland from his present post as Detroit district manager of sales, will serve as assistant to John Graham, general manager of sales at division headquarters in Cleveland.

A native of Brooklyn, Mr. Millard attended elementary schools in Illinois and Lawrenceville Academy in Lawrenceville, N. Y. He was graduated from Princeton University with a bachelor's degree in philosophy and later received his bachelor's degree and master's degree, both in electrical engineering, from Massachusetts Institute of Technology.

On completion of his college education, he started as a technical apprentice in the New Haven mill, and a year later was named a foreman there. After two years, he was transferred to Cleveland in the wire rope sales department and served in a sales capacity until 1942 when he left for service in the Navy. He attained the rank of Lieutenant Commander and was discharged in November, 1945. He resumed his sales career in the division's New York office, and in 1947 was named assistant district manager of sales in Detroit. In August, 1949, he was appointed district manager and has served in that capacity since that time.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THERE'S AN ERICSSON System FOR ANY NUMBER OF EXTENSIONS

Ericsson Telephone Sales Corp. introduced its new, low-cost intercom telephone system at the National Business Show, October 19-24, at Grand Central Palace, New York. Pictured here before the Ericsson Exhibit at the Business Show are: HANS KRAEPELIEN, president, Ericsson Telephone Sales Corp., IRVING SNYDER of Fidelatone Co., Inc., Brooklyn, DOLAND G. CORTELYOU, Newark, N. J., metropolitan area distributors, and ARNE OLYRD, sales manager of Ericsson Telephone Sales Corp.

General Electric Announces Three Appointments

THREE KEY appointments in the communication equipment unit of the newly-formed Commercial Equipment Department in General Electric's Electronics Division were announced last month by Harrison VanAken, general manager for communication equipment: Lacy W. Goostree, Jr. was appointed manager of marketing; Charles M. Heiden was named manager of engineering; and, Clair C. Lasher was appointed manager of manufacturing.

A native of Dallas, Texas, and a graduate of Southern Methodist University, Mr. Goostree joined G. E. as a student engineer in 1941. He served in various receiver and transmitter posts until 1945, when he became a district representative of the Electronics Division at Dallas, engaged in radio communication application work. From 1948 to 1950, he served as sales manager for marine electronic equipment at Syracuse. He has been sales manager for communication equipment since 1950.

Mr. Heiden is a native of Adams, Wisc., and earned his electrical engineering degree from the University of Wisconsin in 1941. He joined G. E. as a student engineer in 1941, and during the war worked on transmitter development for the armed services. He later worked on dielectric heating and marine electronic equipment, entering radio communication engineering in 1946, becoming section engineer in 1949. He has been assistant manager of engineering for commercial products since 1951.

Mr. Lasher is a native of Kittanning, Pa., and a graduate of Penn State College. He joined G. E. at Erie, Pa. in 1939. He subsequently served in the company's Aeronautics and Marine Engineering Division until 1945, when he was transferred to government sales activities in the

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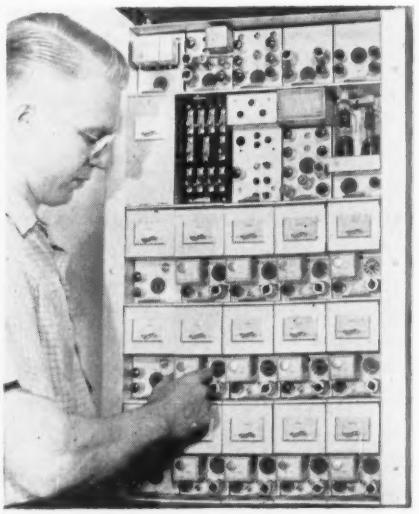
Electronics Division's Washington office.

He came to Syracuse in 1950, on special manufacturing assignments, and has been manager of manufacturing for commercial equipment products since November, 1951.

New Miniaturized 12-Channel Carrier System

DELIVERIES OF new Type 45A carrier telephone systems are now being made by Lenkurt Electric Co., San Carlos, Calif.

Providing up to 12 carrier-derived voice channels on an open wire line, Type 45A systems coordinate with



New 12-Channel Carrier System

systems such as Western Electric J and Lenkurt 42C. They can be installed on lines already equipped with carrier systems using frequencies up to 35 kc. Four staggered frequency allocations are available to permit installation of several systems on a single pole line.

According to the manufacturer many new electrical and mechanical features are incorporated in Type 45A systems. Equipment is miniaturized and makes extensive use of plug-in, interchangeable units. All units for a complete 12-channel system plug into a pre-wired shelf which occupies 31½ inches on a standard 19-inch equipment rack. The shelf mounts through the rack, extending 5 inches to the front and 2 inches to the rear. Filters, hybrids, relays, and other interchangeable components plug into each equipment unit.

Transmission characteristics are claimed to be suitable for application to long haul toll routes, although Type 45A systems will also prove-in

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economically on exchange or toll circuits as short as ten miles.

The manufacturer states sufficient gain and regulation are provided to permit repeater spacing of 170 miles in non-sleet areas. The system broadband regulator provides up to 48 db of flat loss correction at 99 kc and up to 24 db of slope correction between 99 and 150 kc. In addition, individual regulators in each channel will automatically compensate for up to 7 db of attenuation due to line absorption peaks or other irregularities.

Additional information on Type 45A systems is available from: Automatic Electric Sales Corp., 1033 West Van Buren St., Chicago 7, Ill.

Holtzer-Cabot Appoints Mid-West Representative

HOLTZER-CABOT Division of National Pneumatic Co., Inc., Boston 19, Mass., has announced its appointment of The Commercial Electric Co., Cleveland, Ohio, as its representative for sales and service in all Mid-Western states.

The Commercial Electric Co. has been operating as field representative for Holtzer-Cabot for approximately 1-½ years doing service work both in the field and in its factory. In addition, direct sales work is being done by Commercial in the Mid-Western area.

Appointments Announced By Koppers Wood Preserving

D. A. MITCHELL has been named assistant to the general manager, and manager of the Control Section of the Wood Preserving Division of Koppers Company, Inc., it was announced last month by W. P. Arnold, vice president and general manager of the division.

Other organizational changes include the appointment of C. M. Shaw as manager of the Finance Department; M. J. Combe, assistant manager of the Finance Department; Frederick W. Fischer, methods and procedure administrator of the control section; and C. E. Masini, traffic procedures administrator of the Control Section.

Mr. Mitchell, a native of Los Angeles, Calif., joined the company in 1931 as a foreman at the division's Salida, Colo., plant. He was named

Please Turn to Page 110

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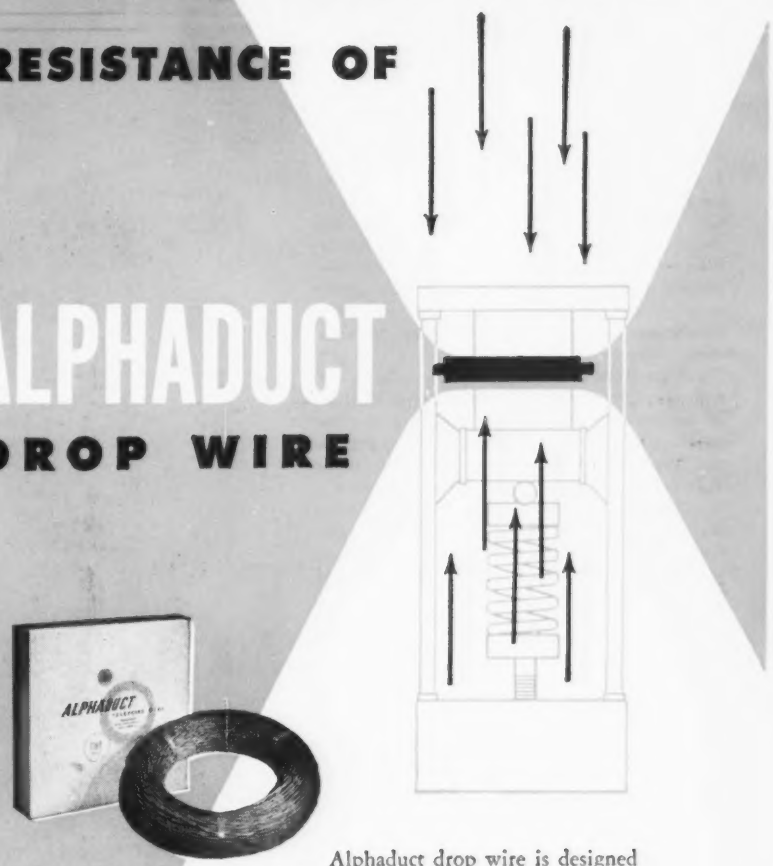

Alphaduct drop wire is designed and built to be the longest lasting drop wire you've ever installed. It's tested . . . completely, thoroughly and often to make sure that every single coil is up to Alphaduct's rigid standards.

Here's how the insulation is tested to make sure it won't crush.

Short lengths of Alphaduct are placed between the steel plates of a compression testing machine. These plates are then forced together at uniform speed until the insulation crushes. Alphaduct parallel drop wire has to withstand a minimum load of 1500 pounds before it breaks. Each conductor of Alphaduct twisted pair will withstand a 1000 pound pressure.

You don't have to worry about a little rough handling breaking down this kind of tested insulation. Try Alphaduct drop wire. It's dated, so you can see for yourself the extra wear it provides.

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NEW PRODUCTS' SHOWCASE

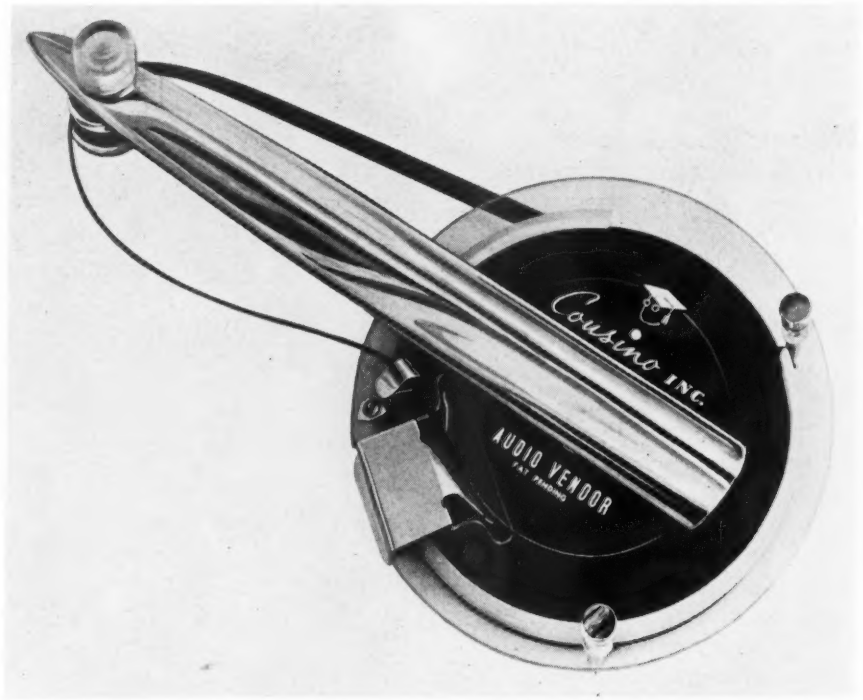
STEP STANDS: — The "CHAMPION" line of aluminum step stands, manufactured by the Scaffold Equipment Co., P.O. Box 8786, Pittsburgh 21, Pa., has almost universal appeal for "off-the-floor" activity. According to the manufacturer the step stands are: (1) lighter than wood ladders; (2) they are a completely welded unit fabricated from high alloy aluminum tubing and expanded metal; (3) technically measured for strength, safety, balance and minimum base area.

All stands with or without handrails. Steps average 10" rise and come in standard sizes of various widths . It is claimed they are impervious to rust, discoloration, acids and alkalis. The units feature self-locking casters so that when weight is placed on the stand, the spring action casters float up and the rubber tips grip the stand to the floor. Remove the weight and the stand is again ready to roll. — For Complete Data, Check New Product 589.

WHEEL BLOCK: — A new heavy duty truck and trailer wheel block, made of high strength cast alloy steel, recently introduced by the Calumet Steel Castings Corp., 1636 Summer Street, Hammond, Ind., is designed to hold heaviest vehicles and loads with ease.

Called the Casteel Safety Wheel Block by the manufacturer, the new block incorporates a number of features that assure positive, safe holding under even the most adverse conditions of grade, surface and load.

The Safety Wheel Block has a wide, curved tread plate which gives greater contact with the tire and assures even, safe distribution of the load. No sharp corners or projecting surfaces are present, which eliminates accidental cutting or snagging of tires. For complete data, check New Product 590.



AUDIO-VENDOR: — A new field for designing automatic telephone-announcing equipment has been opened by the development of a new, automatic, message-repeating device embodying a magazine of magnetic tape, according to B. A. Cousino of Cousino, Inc., Toledo, Ohio.

Messages advising telephone users of dialing mistakes and changes in prefixes and numbers can be recorded on continuous tapes employed on the Audio-Vendor. Weather reports can similarly be recorded.

Special circuits can be set up so that telephone personnel can call in at any hour of the day or night for latest instructions regarding telephone emergencies or other messages.

The magazine fits any standard tape recorder, and the tape is pulled from the center of the reel and automatically rewound on the outside.

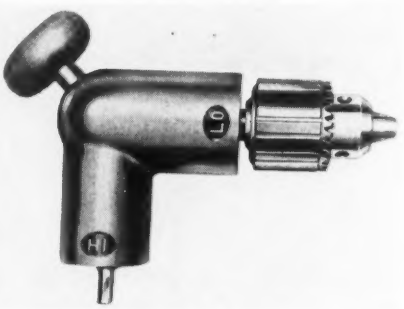
Perfect reproduction and completely trouble-free performance are possible with tape loops of any running time, allowing for the continuous repeating of messages of from 15 seconds to 15 minutes.

As they are recorded, new instructions wipe off the tape and are automatically rewound on the outside.

Success in the development of the Audio-Vendor can be largely attributed to the comparatively recent perfection of a practically-indestructible, friction-free, processed magnetic tape which completely eliminates fatigue, static, tackiness and binding.

The Audio-Vendor has been thoroughly field tested and evaluated by research-testing laboratories. In addition, the tape has been proved by impartial tests at the University of Toledo Research Foundation.

For your copy of a free brochure describing the Audio-Vendor, Check New Product 591.



DRILL ATTACHMENT: Now, according to R. C. S. Tool Sales Corp., Joliet, Ill., makers of the R. C. S. Super Saw, you can drill a 2-9/16" hole through hardwood with a

¼" heavy duty drill. This feat, according to R. C. S., is accomplished through the new team of R. C. S. "Korner King" plus the new R. C. S. Super Speed Bits. The R. C. S. "Korner King" converts ¼" capacity drills of 2000 angle attachments, offered in a kit with 10 (also brand new) R. C. S. Super Speed Bits.

With the R. C. S. "Korner King" and the special bits, journeymen in many trades can increase the versatility of any heavy duty ¼" electric drill. This new right angle drive triples the range of drills by adding two more speeds to their operation. "Korner King" converts ¼" capacity drills of 2000 RPM to 1000 RPM with 80% more power . . . reverses this gear ration in seconds by simply snapping off and on for high speed drilling of sheet metal, etc. Handy, compact design of the R. C. S. "Korner King" right angle drive allows drilling in othrwise impossible locations . . . drills between joists and studs, or in tight cramped corners. Special shaft extensions for R. C. S. Super Speed Bits permits penetration of any thickness and alignment of holes through any series of obstructions. For complete information, check New Product 592.

HEAVY DUTY VACUUM: — The new Hild Vacuum Machine, Model 215, is designed specifically for heavy-duty dry clean-up work. The unit is powered with the latest type 5/8 H. P. vacuum motor with efficient turbine fan design. Scientific control of the air stream throws picked-up dirt against the sides of the dust container and thus minimizes clogging of the internal fabric air filter.

A feature of the new machine is its ease of handling. It tracks perfectly at the slightest pull on the hose, even when pulled across door saddles or similar obstructions. Its easy handling results from a completely original method of mounting. Towards the rear of the tank are two 10-inch wheels with 1-3/4 inch semi-pneumatic tires. At the front, directly under the hose connection, is a 3-inch rubber-tired caster with ball-bearing swivel. The machine weighs only 52 pounds.

The carpet tool, the floor, wall and ceiling sweeping tools and the 5-inch utility tool all have swivel connections which enable the operator to maintain continuous surface contact without twisting the hose. The lip of the carpet tool is designed to glide easily over heavy or light pile rugs.

Much of the usual vacuum noise is smothered by the generous use of rubber mountings and by fully enclosing the motor. Other design features quiet the air stream. For complete data check New Product 593.

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POLES, Southern Yellow Pine — *Texas Creosoting Co., Orange, Texas.*—[ADV. 19]

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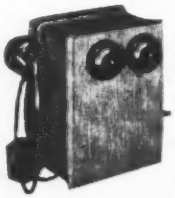

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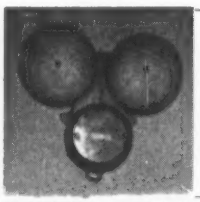

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Western Electric No. 22-C type on No. 89-B Mounting (5 per strip) **BRAND NEW**
BUCKEYE
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See Your SUTTLE Catalog

Serving Independent Telephone Men Since 1910

Suttle EQUIPMENT CO.

LAWRENCEVILLE ILLINOIS

Industry News

Continued From Page 105

Pittsburgh district manager last May, and previous to that had been superintendent of plants for the division.

N. F. Diederich Joins Electric Products Co.

G. J. Doss, general manager of the Switchboard and Control Division of The Electric Products Co., Cleveland, Ohio, has announced the appointment of N. F. Diederich as manager of engineering.

After graduating from Case Institute of Technology in 1932 with a B.S. in Electrical Engineering, Mr.

N. F. Diederich

Diederich spent 17 years with The Clark Controller Co. where he last served as manager of Engineering Standards. He has long been active in A.I.E.E. affairs, having served the Cleveland Section as Chairman of the Motor and Control Group and Technical Chairman of the Technical Group Committee. At present he is a member of the Professional Status and Registration Committee.

Registered as a Professional Engineer in the State of Ohio, he carries his engineering activities into his home life where he is an expert model builder, having recently completed a fully automatic electrified scale model of a traveling derrick.

Mr. Diederich's responsibilities in his new position include the development of a complete line of control for rotating equipment.

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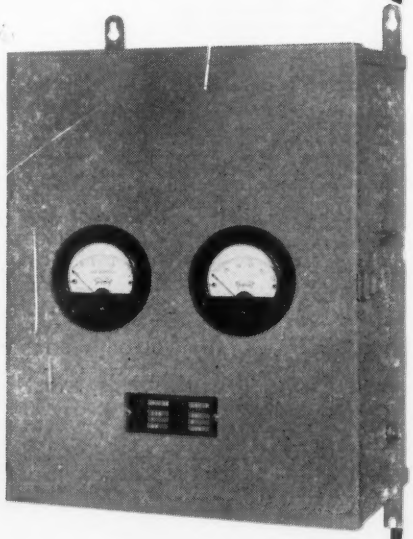
for Years- and Years- and Years- of Service!



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STROMBERG | CARLSON

transmitter

Published by the famous makers of XY Equipment

VOL. 2, NO. 10 JANUARY, 1954

Teamwork Spells Progress at Rochester, N. Y.

A closely knit team — eight men pooling resourcefulness and energy for common ends — accounts for the new burst of energy at the Rochester (N. Y.) Telephone Corporation. Look at the record . . . installing 21,000 new telephones in 1953 . . . cutting over six exchanges (80 thousand plus stations) in a few short years. And much more to come shortly.

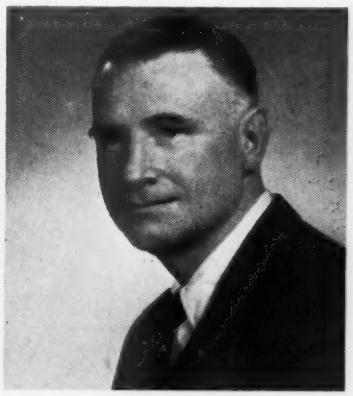
This great upsurge of activity in one of America's largest Independent telephone companies (219,000 terminals as of Dec. 31, 1953) was the result of a great evolution, not revolution.

By bringing men into the company early in their careers and offering them outstanding opportunities, the management of the Rochester Telephone Corporation sowed the seeds of today's progress many years ago.

The young men they hired back in the twenties and earlier have risen to the top in their company — and the results are amazing! Thoroughly familiar with their company, their subscribers and their associates, these men operate as a dynamic, well-coordinated team — a management team that doesn't know how to waste energy.

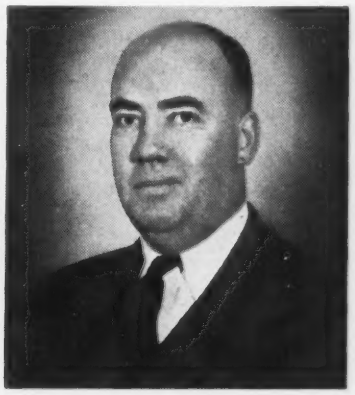
Captaining this enthusiastic team is *Donald H. Campbell*, President of the Corporation. Don has been with the company since 1912, when he joined the Plant Department as an apprentice. His career was chiefly in maintenance, leading to his appointment as Plant Superintendent in 1944. He became Executive Vice-President in 1947, and President in

Donald H. Campbell, President



William A. Kern, Executive Vice-President

Arthur S. Gibson, Vice-President



Fred C. Goodwin, Jr. Secretary and Treasurer

William A. Pitbladdo, Traffic Superintendent

C. E. Howden, Plant Superintendent

Adam J. Schwartz, Personnel Supervisor

G. W. Miller, Chief Engineer

1950. Active and enthusiastic, he combines an easy-going personality with an immense drive and vision.

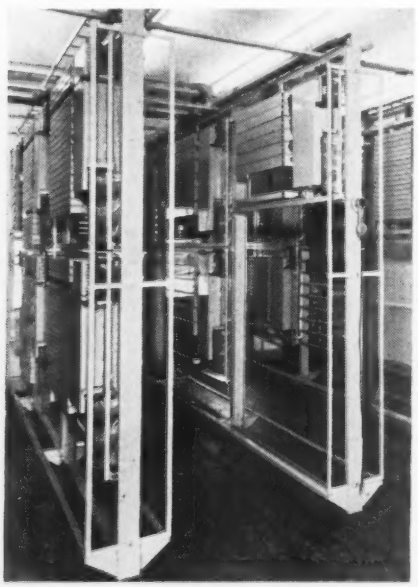
Currently, Independent telephone men know Don as First Vice-President of the U.S.I.T.A.

Executive Vice-President of the company is *William A. Kern*, who also heads the Commercial Department. After graduating from Colgate University in 1927, he entered the telephone industry, becoming a recognized specialist in traffic at New York City, Albany and Buffalo, before joining the Rochester company in 1935. He was named to his present position in 1952.

Vice-President *Arthur S. Gibson* (often confused with Arthur F. Gibson of Stromberg-Carlson) has as his bailiwick the Accounting Department, which he joined as a bookkeeper in 1921. He progressed to Chief Accountant in 1928, Auditor in 1948, Controller in 1950 and Vice-President in 1951.

Fred C. Goodwin, Jr. is Secretary and Treasurer. After graduating from the Wharton School of Business Administration, "Jack" Goodwin joined the Plant Department at Rochester in 1928. He worked in plant, engineering and traffic departments before being elected Secretary in 1934. In 1940 he became Secretary-Treasurer.

William A. Pitbladdo, Traffic Superintendent, an M.I.T. graduate, makes his greatest contribution to the team in technical know-how. He joined the company in 1934 as a central office insideman before transferring to Traffic. He moved into his present position in 1953.



Section of XY equipment room at Avon, N. Y.

Clayton E. Howden has been with the company since 1916, except for a break during World War I. Clayt is Plant Superintendent, an office he has held since 1950. His career was one of steady advancement from Wire Chief of the Glenwood Exchange in 1926 through responsible posts in maintenance and construction.

Adam J. Schwartz joined the Plant Department after graduating from Holy Cross in 1926. Passing through various units of that department, he became Plant Office Manager in 1945. In 1951 he was given new responsibilities as Personnel Supervisor.

Chief Engineer is *G. W. (Bill) Miller*. He came directly from Cornell in 1925, was appointed an engineer in 1932. In 1945 he became Equipment Engineer, and has been Chief Engineer since 1946.

These are the men on Rochester's management team — the go-getting team that has brought new vigor to an old Independent. Their hopes are high — by this time next year over 50% of their subscribers will be served by dial, one of the largest cut-overs in Independent history.

Not to be overlooked, while the major task of converting Rochester's central exchanges moves toward completion, is the excellent grade of dial service that has been selected for the surrounding towns and the major industries, banks and institutions. XY-CDO and XY-PBX installations now in use or nearing completion offer these subscribers an assurance that future, as well as present needs will be met.

Naturally the overall goal is the important consideration. Next year's cut-over of the Monroe exchange alone will involve 18,000 telephones . . . the equivalent of a fair sized city! And you may be sure there will be no resting on laurels until the entire job is finished. But when you have a team of trained experts, fired with enthusiasm, even the seemingly impossible happens quicker . . . ask Don Campbell.

MEET
Lynn C. Holmes

Lynn C. Holmes, Director of Research at Stromberg-Carlson combines the attributes of the pure scientist and the practical engineer.

Some of this may go back to his student days: while studying for his Master's Degree in Electrical Engineering, Mr. Holmes worked for General Electric in the Distribution Transformer Department and also for the Brooklyn Edison Co. in its Outside Plant Bureau.

In 1943 he came to Stromberg-Carlson for research in sound recording. Appointed Associate Director of Research in 1950, Mr. Holmes became Director later that year. Not long ago, his department embarked on two projects dealing with the application of transistors to telephony.

As an interesting special assignment, Mr. Holmes visited students in technological schools explaining opportunities in research and engineering at Stromberg-Carlson.

Lynn Holmes has always shown great interest in things scientific. He is a Fellow of the A.I.E.E.; he is a member of the Rochester Section Executive Committee, and has been Secretary for the Special Communications Applications Committee. He is also a member of Sigma Xi.

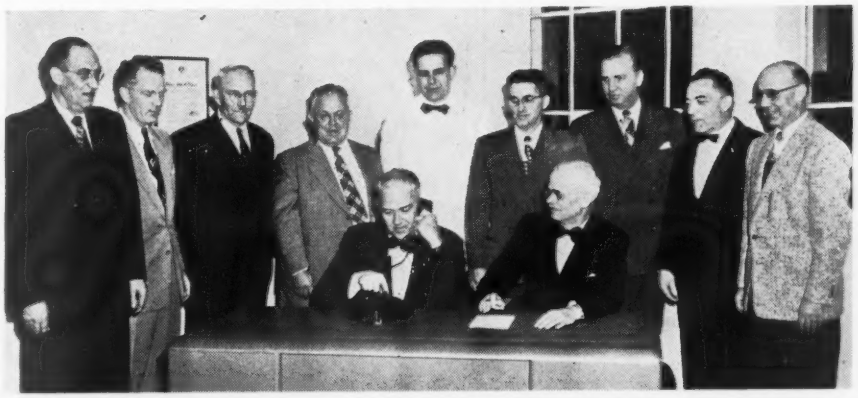
His civic activities have been centered around the youth of Fairport — his home. He is President of the Board of Education and from 1949-1951 was active on the Fairport Youth Commission.

Mr. Holmes is a licensed engineer in New York State and the author of several published articles for electrical engineering journals.

Married in 1926, the Holmeses have three boys — two of whom have followed the scientific bent of their father. Lewis, 15, is still undecided.

STROMBERG-CARLSON transmitter

Ketchikan, Alaska: Another New XY City!



George H. Beck, Mayor of Ketchikan, places first XY call to Governor Frank Heintzleman of Alaska. At his side is John M. Weir, Manager of Ketchikan Public Utilities. Standing, l. to r., are: Ben I. Palmer, KPU Plant Manager; Fred E. McGrady, Stromberg-Carlson; Ed Brokker, KPU Board of Control; Herman Selle, Stromberg-Carlson; J. L. (Jack) Sherman, Chairman KPU Board of Control; Maurice Oaksmith, Secretary KPU Board; Morrie L. Hansen, Stromberg-Carlson; Walter Anderes, KPU Board; Merrit Klepser, City Councilman.

Near the southern tip of the Alaskan panhandle, perches the important fishing center of Ketchikan. This active young city, pushing its way inland from the ocean, has for several years realized an expanding need for reliable, efficient telephone service.

On October 3, at 11:00 P.M., Ketchikan Public Utilities (municipal organization) cut over its entire exchange to Stromberg-Carlson XY Dial operation. Housed in a new addition to the telephone building, the 1300 lines of XY equipment will handle future as well as present telephone needs of the city.

Much credit for the smooth transition to dial goes to Ben Palmer, Plant Manager. The 2400 subscribers are highly pleased with their improved service. New cable, planned upon completion of alterations to the main thorofare, will bring this service to even more people, farther from the center of the town.

Jack Sherman, Chairman of Ketchikan's Board of Control, watches Fred McGrady test XY equipment just before cut-over.

Bill Bailey, Central Office man for KPU, examines XY Switch as Stromberg-Carlson's Hansen and Selle look on.

Operator Ruth Dickinson uses new information, rate and route board at Ketchikan.

STROMBERG-CARLSON transmitter

Postman's Holiday

No. 4 Coos Bay, Oregon, to Everett, Wash.
by George Forbes, Technical Publications Editor

Don't try to make time on the Oregon coastal highway — not unless you're completely bored with beauty and want to cash in your life insurance.

The Oregon Coast.

Mountains fall right down to the sea; the thin ribbon of highway poises in mid-air where they meet. One of our many stops was at little known Cape Blanco — the westernmost point in the U.S.A. reached by road. Another was at Oregon's famous drifting sand dunes, well worth exploring. In the midst of all this scenery, yet furnishing a terrific contrast in its bustling activity, is *Coos Bay* — a major center for the West Coast Telephone Company. You read in last month's "Transmitter" about the cutover of this 2100-line exchange to XY Dial.

Columbia River Bridge.

The Dean family — Wihte Salmon, Ore.

George McBride, district manager, immediately won the children's hearts: even before taking me to the new telephone building, last summer, he showed them where and how to fish!

An excellent crew of West Coast Telephone Co. installers had most of the cabling done; Lois Huntington was teaching her operators the many new possibilities of the toll board. Mattie Mosher, who had just received her 35 year pin, told about a fellow West Coast Co. operator who had been granted a Vaill Award for service during the disastrous Brandon Fire.

Mr. McBride showed how all planning had taken into account future expansion, both within the equipment and toll areas and in the construction of the buildings so that a floor could be added or new sections built on. In this virile country growth seems to be chronic, and they are ready.

In *Portland*, (Ore.) we stumbled upon friends last seen in Portland, Maine. Our children were soon in a ball game with theirs, and never missed us as we took the scenic route up the Columbia River Gorge to call on the Dean family of *Hood River* and *White Salmon*. Cross to the Washington side above Bonneville Dam and you have recurring views of majestic Mt. Hood. I had never quite believed that it is mantled with snow even in July.

"Pa" and "Ma" Dean are the kind who insist that you stay overnight. There's not much about telephony in this part of Washington and Oregon which they haven't learned since they started in 1905. We hated to break off conversation at midnight. Earle Dean, now manager of the Hood River Telephone Co., was literally born in the telephone business — ask him! The early morning sun on snow-covered Mt. Hood, as seen from their porch, will never be forgotten.

Enroute to Seattle and Everett we side-tracked in for a closer look at Mt. Rainier. Just at the right time the cloud-cap obligingly rose — one's

Top, left: Coos Bay's District Manager George McBride and wife Virginia, with Stromberg-Carlson's Fred McGrady at Cut-over.

Bottom, left: Cutting over at Coos Bay.

Right: Engineering Dept. at West Coast Telephone Co.

thoughts, as one's eyes, are uplifted. No wonder the Indians peopled this mountain with gods!

In *Everett* the West Coast Telephone Co. home office folks extended a cordial welcome. Ray Dalton and Lloyd Walgren chatted about the growth of the Northwest, submarine cables, improvements in service. Dan

Ray Dalton

Lloyd Walgren

Dan Tompers

Tompers introduced his well-staffed engineering group, many of whom have come up through the ranks to their present responsible positions. Men like these never take time to talk about themselves — the accomplishments of the last five years make this unnecessary.

The business office is a model of modern efficiency. Just as one example, how would you like to process 800,000 toll tickets each month! More of this and other West Coast operations later.

A pleasant evening at the Fred McGrady's home, a glance at our travel schedule, and with a vow to return again to this beautiful, dynamic, challenging Northwest, we headed toward Spokane. See you there next month.

Correction article on "High Impedance Ringers" September, 1953 Transmitter. Figure 3 should read as follows:

Net impedance of 10 bridged "Hi-Z" ringers (Type #72) is 26,700 ohms; 10 bridged Low Impedance Ringers (Type #62) is 2,270 ohms.

Man and Wife Team Use Credit Corp. Loan to Build Future with XY

Another progressive telephone family has assured a future for themselves and at the same time brought tremendous improvement in service to all their subscribers — a happy combination which is so much a part of the Independent telephone story.

Midway, Pennsylvania, is typical of so many Independent towns now engaged in an improvement program. All plans eventually come to the place where the method of financing must be decided. Mr. Machett, manager at Midway, found his best answer in the Stromberg-Carlson Credit Corporation program, established especially to help the smaller companies like his.

Joseph A. Machett, Jr., followed his father into managing the Midway Mutual Telephone Co. Mrs. Machett has capably handled the business office, and will also admit to shooting trouble both inside and out on the lines.

A dream for a solid future has come true for Mr. & Mrs. Machett

The exchange area covers 30 square miles and includes the towns of Midway, Bulger and Candor, southwest of Pittsburgh. 95 percent of the subscribers are stockholders, which had considerable bearing upon the care used in selection of the best possible equipment. Conversion to dial caused quite a spurt in subscribers, but now Mr. Machett believes that demand will remain fairly steady and the XY equipment will take care of future growth easily.

The proximity of Pittsburgh led to the initial use of 2-5 numbering, so that at any time they are ready for immediate inclusion in the greater Pittsburgh toll-dialing exchange area. New directories were coordinated with the overall plans of the Bell System for inter-toll dialing.

Historic New York Town Joins Swing to XY

Holland Patent, N. Y. is a town steeped in colonial history; its beautiful green, flanked with lovely old churches and public buildings in the Greek Revival architecture. Many vacationists plan their itinerary to the Adirondacks so as to include a visit here.

But even beautiful old towns have a way of growing. When Mr. P. E. McCarthy came to Holland Patent in 1928 his company served 100 subscribers; today he has about 700. Mr. McCarthy began his modernization several years ago; the cut-over of XY Dial equipment in November of this year was the second major stage in this improvement program. Another exchange in nearby Westernville, will be given dial service in the near future, part of Mr. McCarthy's long range program.

STROMBERG-CARLSON transmitter

The New 1500 Series Telephone

by Louis W. Droel, Apparatus Engineering

The 1500 Series Telephone embodies certain refinements in the already popular 1400 Series; a further step in Stromberg-Carlson's program of offering to Independent telephone companies the latest and best telephone instruments.

Noticeable at once is the new hand-

New 1500 Series Telephone

set. The replaced handset of the 1400 Series telephone is equal to the best available up to this time. But like all contemporary handsets now in general use, it is heavier and longer than is necessary. The new handset on the 1500 Series telephone is much lighter and shorter and is "styled" to agree with the modern low lines of the housing.

The shorter length places the transmitter closer to the user's mouth and thus increases the volume output of the transmitter. The same good looking, long wearing cord with nylon outer braid and plastic insulated conductors is used.

Exploded view of handset

The transmitter has been redesigned to reduce the outside diameter and to make use of new age-stabilized carbon. This redesign gives improved transmission and increased life. The receiver is identical to that used in the 1400 Series telephones except that connections to this receiver are made directly by means of screw type terminals instead of through springs.

The circuit of the 1500 Series telephone is unchanged, with the same receiving and anti-sidetone characteristics. Transmission is increased from 1 to 2 db.

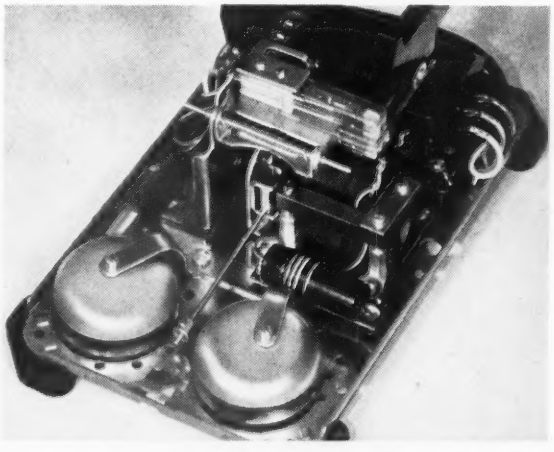
The second modification is in the ringer. The mechanism of the ringer itself is the single coil, high impedance design used in the 1400 Series telephones except that the ringing capacitor is mounted directly on the ringer base and thus becomes a part of the ringer assembly. This makes changing of ringers in telephones in the field very simple and foolproof. The large size gongs for greater volume are retained, also the reliable "potted" coil capacitor unit.

The other outstanding features of the 1400 Series telephone have been continued in the new series. All parts of the telephone are compactly mounted on the base, with the housing serving merely as a cover. Converting from desk to wall type telephone is accomplished simply by changing the plungers and rotating the dial. The same smartly styled housing of tough Tenite II continues to merit praise. The smooth working dial, with its exclusive dust cover enclosing the mechanism, and extended number plate for greater visibility, is retained. The two-piece dial blank allows easy conversion to dial operation with either old, small type dials or the new large Stromberg-Carlson dial. The hookswitch contacts are enclosed by an easily removable dust cover. Provision is made for mounting ringing tubes inside the telephone when required, as was also done in the 1400 Series telephone.

The 1500 Series of telephones now includes the new 1543 Standard Telephones with high impedance straight line or tuned frequency ringers for manual or dial service to be used as either a desk or wall telephone. It also includes the 1544 Telephones without ringers or coil capacitor units to be used for extension service, or as part of a two-piece set with separate bell box. The mating 1560 Desk Set Box contains the new high impedance ringers and a coil capacitor unit to be used as part of a two-piece telephone. The 1561 Compact Extension Bell Box can be used wherever an extra or separate ringer is required. The 1573 Two-Line Telephone provides access to more than one line with holding features.

The new 1500 Series of telephones completes the development of a product that is pleasing in appearance and modern in the application of the latest known advances in the telephone instrument field.

Interior, showing ringer



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THE BACK OF THE BOOK

BY JOHN G. REYNOLDS

These Would Stump Webster

IF YOU OVERHEARD a group of linemen discussing various phrases of their work, you'd wonder if the dictionary wasn't a bit twisted on some of its definitions.

If you heard them refer to a beehive, idiot's stick, peanut burner, grass or diaper, you'd think you knew what they meant. That's what you think!

In a language all their own, these are some definitions as applied by telephone workers:

Idiot's Stick: — Nine-foot digging bar, known to laymen as a crowbar.

Beehive: — Lamp signals on switchboard to attract attention to calls, a term referring to shape of lamp caps.

Peanut Burner: — Acetylene torch used to melt metal in splicing operations.

Grass: — Noisy condition on radar screen having appearance of waving grass.

Buttinsky: — Hand telephone used for testing purposes.

Swedes: — Pliers for cutting and skinning wires, most commonly used tool in telephone business, formerly made by Swedish firm.

Diapers — Muslin or rubber bandage used as temporary measure to protect incomplete cable splices.

Quick Like a Turtle

BACK IN THE OLD whaling days, long before ship-to-shore telephones were even thought of, getting messages to a man at sea was a long and complicated business. On Nantucket Island they tell the story of a correspondence between a sea captain out in the Pacific and his wife at home. "Dear Ezra," wrote the wife, "where did you put the axe?" Fourteen months later the husband's letter arrived with the question: "Dear Martha, what do you want the axe for?" Two years later his wife replied, "Dear Ezra, never mind the axe. What did you do with the hammer?"

"Shorts" . . .

ANOTHER "first in hotels," advertises a New York hostelry, the "first" being an extension telephone in every bathroom . . . A newspaper recently defined adolescence as "the period in which the young suddenly begin to feel a great responsibility about answering the telephone." . . . A good-looking young grade-school teacher discovered too late why one of her pupils wanted her telephone number. The young businessman was selling numbers to neighborhood bachelors at a quarter a piece.

Codger Tale

CORONET MAGAZINE reports that shortly after a Vermonter had had a telephone installed, a neighbor dropped in and found him reading. The telephone was ringing persistently, but the old man took no heed whatever. "Say," the caller ventured, "ain't that your ring?" "Ehyah, 'tis." "Ain'cha gonna answer it?" "No," said the other, "I'm busy, and I had that durned thing installed for my convenience."

"Pushcart Thinking"

PUSHCART THINKING is what International Latex Corporation calls this editorial:

A man lived by the side of the road and sold hot dogs. He was hard of hearing so he had no radio. He had trouble with his eyes so he read no newspapers. But he sold good hot dogs.

He put up a sign on the road telling how good they were. He stood by the side of the road and cried: "Buy a hot dog, mister." And people bought.

He increased his meat and bun orders. He bought a bigger stove to take care of his trade. He got his son home from college to help him.

But then something happened . . .

His son said, "Father, haven't you been listening to the radio? If we have world peace, it will be bad for business. There may be a big recession coming on. You had better prepare for poor trade."

Whereupon, the father thought, "Well, my son has been to college. He reads the papers and listens to the radio. He ought to know what people are saying and what's coming."

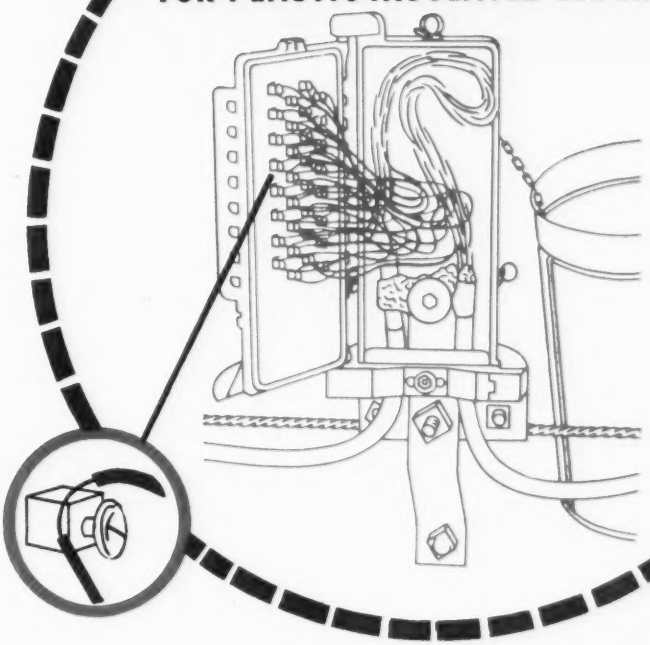
So the father reduced his meat and bun orders. And no longer stood on the road to sell hot dogs. And his hot dog sales fell almost overnight.

"You're right, son," the father said to the boy, "we are certainly headed for a recession."

SO EASY TO USE

TYPE MP CABLE TERMINALS

FOR PLASTIC INSULATED and JACKETED CABLE



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The principle of split grommets used in RT&E's new type MP cable terminal permits the cable to be looped into the terminal . . . the outer cable jacket and sheath peeled away, inside the terminal . . . a small segment of insulation removed from the pairs to be connected to the face plate . . . the entire operation completed without cutting or splicing the cable.

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